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Lighting the Panama Canal.

[By DR. LEONARD KEEN HIRSHBERG, A.B., M.A., M.D. (Johns Hopkins)].

The journey of ships sailing through "Culebra Cut" at night will be in the dark; they will be guided only by a system of beacons on either bank and by such light as comes from the moon with the stars. From the top deck of the largest ship no glimpse may be obtained of the country along this part of the canal, for even the broad valley opposite Culebra will be high above the deck, while at the summit of the continental divide, where hills have been cut away to make the channel, the rock sides will tower hundreds of feet above the masthead. On this account the canal between the hills will be in darkness, and at times there will be heavy fogs such as now accumulate in the cut during the night, to be separated by the sun in the morning.

In the original plan for lighting the canal it was explained that the conditions in Culebra Cut would make impracticable the system of range lights employed on the lake and in the sea level channels. In this system two lights are placed one behind the other on the bank, in such relation that, when the pilot gets them both in line, he knows his ship is on the right range. But the steep sides of Culebra Cut do not permit such an arrangement, for there is not room for one light to be placed behind another at sufficient distance to make them any use as range indicators. The plan, therefore, is to establish three beacons, at each angle in the cut, and between these, intermediate beacons in pairs on each side of the canal. By keeping his ship pointed midway between these beacons, the mariner will be able to adhere closely to the center of the canal.

Steering a ship through Culebra Cut will be much like the navigation encountered in the tidal estuaries of the southern rivers, where there are many turns. For the canal does not follow a straight line through the Continental Divide, but takes advantage of natural depressions in the land, in order that excavation might be reduced to the minimum. There are 8 turns or angles, the sums of which represent 144½°, so that if all the turns were made at one time and in one direction, a ship, in passing through the cut, would describe over one-third of the area of a circle. Throughout the entire length of the cut, with the exception of only two turns or angles, the pilot will have before him only the lights necessary to guide the ship through the tangent in which it happens to be, and will see no other aids to navigation until he reaches the next turning point. This is accomplished by screening the lights so that they will be seen only through a certain number of degrees of arc of the horizon.

To eliminate the possibility of confounding the lights with one another, and with lights ashore, all the beacons will have individual characteristics formed by flashes of light and dark intervals. Thus the tentative arrangement for all turning point lights on the starboard hand is a single flash, whose period of flashing is 3 seconds; for all turning point lights on the port hand, a double-flash, whose period is 3 seconds; for all intermediate lights marking the starboard edge of the channel an occulting light whose period of occulting is 10 seconds; and for all lights marking the port edge of the channel, a double flash whose period of flashing is 8.8 seconds.

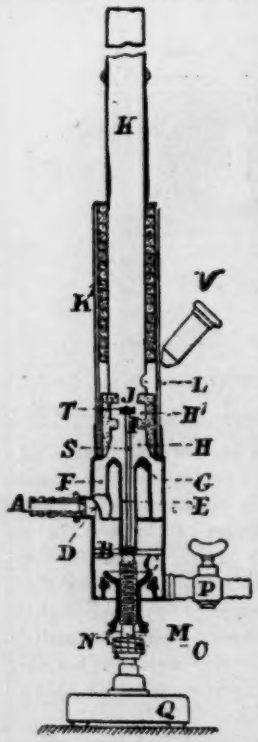
There will be 35 reinforced concrete beacons in the 9 miles of Culebra Cut, 23 at tangents, and 12 at intermediate points. These have been cast at the Balboa plant of the lighthouse subdivision, in three parts—the body, the roof and the part for the lantern—and are ready to be installed as soon as the work in the Cut has advanced far enough. At present the slides make it impracticable to place the foundations for the beacons.

It is proposed to make the foundations on the 90-ft. beams, and after the Cut is flooded to carry the beacons in barges to the points where they are to be set up and then to lift them from the derrick barges into position.

A Vertical Comburimeter.

In the *Journal de l'Eclairage au Gaz*, M. Andrè Grebel describes a late form of instrument for determining the quantity of air or oxygen required for the complete combustion of gas.

The apparatus, shown in section, consists of a gas inlet *A* and an air chamber *B*, the later closed by a conical valve *C*, which screws upon a central rod *M*, supporting the instrument. The amount of the opening through *C* is indicated by the pointer *N* and divisions on the cylinder *O*, each division corresponding to one 0.1 mm. turn of *C*. Ordinarily the air is brought in by suction of the chimney *K*, through the valve *C*, but a cock *P* is provided to admit metered air



if desired. From *B* a portion of the air enters the injector *D*, feeding the burner *G*; and the balance passes into the central space *E* and the annular space *F*, through orifices that may be adjusted to suit the gas tested.

The mixture of primary air and gas is burned in the combustion chamber *H*. This chamber is asbestos lined and consists of two parts *H* and *H'*, separated by a fire-clay diaphragm *I*, with calibrated orifices, for the purpose of thoroughly mixing the gases. It ends with another diaphragm *J*, with calibrated orifices. In the compartment *H'*, where the test of the combustion is made, there is a support *S*, of nickle, carrying a cupel *T*, which is composed of a special earth having the property of absorbing oxides of lead. In this cupel is placed the lead button which indicated the character of the flame. The blackened copper chimney *K* is provided with a sight hole *L*, and is inclosed in a glass sleeve *K*, with a packing of plaited asbestos between *K* and *K'*.

The apparatus is, in effect, a small gas furnace with a vertical burner. The mixture burned in the combustion chamber heats the cupel, which is entirely surrounded by the products of combustion, and the appearance of the melted lead pellet, as viewed through the eyepiece *V*, indicates whether the flame is either reducing or oxidizing.

In a reducing atmosphere the lead is brilliant and appears darker than the cupel, and reflects the sides of the furnace like a mirror. In an atmosphere slightly oxidizing, the surface of the lead is rapidly covered with tongues of colored oxides: With very slight variations of the quantities of air and gas, when near the point of perfect combustion, these changes are very distinct.

In testing ordinary artificial gas the valve *C* is left open two turns and the gas consumed in perfect combustion should be about three cubic feet per hour. With the burner in ordinary working condition, and the products slightly "reducing," the quantity of gas is slowly cut down until traces of oxide begin to show on the lead, indicating the proper mixture of gas and air. By the means of a stop watch and a test meter the time required to burn two-tenths of a cubic foot of gas is determined, and the result calculated by the following formulæ:

$$\frac{\frac{500}{21600}}{t} = \frac{t}{43.2} = 0.023148 \times t.$$

Where 500 is the litres of air per hour admitted by the valve, open two turns, and t the number of seconds required to burn the measured quantity of gas. For example: When t = 240 seconds the "comburworous" power of the gas tested is 5.555; When t = 225 seconds it is 5.2083, and when t = 265 seconds it is 6.1342.

The instrument seems to be simple in construction and not difficult of operation, and we understand is being used experimentally by prominent foreign gas engineers.

[Official Report.—Continued from Page 230.]

FIFTH ANNUAL MEETING, INDIANA GAS ASSOCIATION.

Held in the Claypool Hotel, Indianapolis, Ind., March 12-13, 1913,

Second Day—Afternoon Session.

The President convened the adjourned session at 2:00 P.M. Having announced that Messrs. J. W. Dunbar and B. H. Danforth had been appointed as a

Committee on Next Meeting Place,

he introduced Mr. O. O. Thwing (Fort Wayne) who read the following paper on

WORKINGMEN'S COMPENSATION.

When I volunteered several months ago to prepare a paper on the above subject, I had some pretty well defined ideas and anticipated a fairly simple and easy task. Since then I have endeavored to investigate the subject thoroughly and thoughtfully, only to find that the few months at my disposal were totally inadequate for the task, and that there is much, very much, to study, to discuss, to learn and to foresee in connection with this question; one of the greatest ones that confronts us, not only as employers and employees, but also as citizens. It is, therefore, impossible, in the scope of a paper such as this, to do more than give the most general outlines of the findings and impressions of an individual, without attempting to go into details.

The relations of employer and employee are vital to society and civilization. Each is interdependent upon the other, and the progress of the world is dependent upon both. Try and imagine where we would stand to-day, as a result of individual efforts, instead of the concerted and organized work that has been accomplished by the invention of employment. The vast majority of men are, by nature, employees, and it is necessary, in order to make them of their proper value, that they come in contact with those few who have the initiative courage and immagination to be employers. This may seem putting it strong, but each of us can certainly recall from his own experiences, the cases of "Tom.," "Dick." and "Harry.," the village loafers, who got an odd job once in awhile, but spent most of their time on the sunny side of the street wondering where they would get their next winter overcoat. Nothing bad about them, just known as "shiftless," with good prospects of becoming criminal if the opportunity should offer. Let a manfacturing establishment start up in the neighborhood that will offer them steady employment, and they will often become respected citizens and heads of families. They were natural employees, out of employment, but as soon as they found that employment they found their place. The employer is the greatest preventive to crime and poverty that the world has produced.

What has this to do with the subject under consideration? In reply I will state I wish to show that, while the laborer is worthy of his hire, the employer is entitled to consideration, and that legislation and social movements must consider that each of them is essential to the other and that unfairness to one is injury to both.

I am a firm believer in workmen's compensation, but I cannot see why it should be limited to accident alone. To those whose only capital is their strength, skill or intelligence, the disaster is just as great if their use of that earning power is lost through sickness, infirmity or lack of occupation as through accident. The only difference is that in the one case they become a grudging and discredited charge upon the public, while in the other they become a burden upon an employer of labor whose only fault in connection with the cause of disability may be the fact that he gave the injured one a job. Why should one workman or his family become pauperized through misfortune due to sickness, infirmity or accident outside of employment, while on the other hand his neighbor becomes a man of affairs and income through the fact that he met his disability through the discharge of his occupation? The latter may have been careless, indolent, indifferent and largely to blame for his own condition, while the former may have been an ideal workman; but the conditions remain unchanged.

Let me make my first premise: Workmen's compensation should be a right to the workman in all legitimate cases where the earning power of the workman has been destroyed, such as through accident, sickness, death from any cause with dependents for support, infirmity or loss of occupation. In the latter case the administration of the fund would, of course, be expected to assist in the re-obtaining of employment as soon as possible.

Second Premise.—Workmen's compensation should be borne by society as well as by employers, and not exclusively by employers as at present. I grant that the employers should bear more than their *pro rata* share of this expense, from the fact that they have their employees for the purpose of personal profit.

Third Premise.—Workmen's compensation should be subject to Federal control instead of State control in all its branches, legislative, executive and administrative. The necessity of this is illustrated by present conditions that have to be met by contractors, such as the Company I represent, whereby we are required to pay for indemnity insurance all the way from $2.75 per $100 on our payroll, in certain States, to $17.70 per $100 in others for protection by the insurance companies. This condition is due entirely to the various State enactments that differ so widely from each other.

The following analysis of sources of revenue and channels for disbursement will probably appear Utopian to many, and particularly to the practical politicians, and I admit that it is looking a long way

ahead; but I see no reason why it, or something like, may not some day be in effect. I will not attempt in any way to proportion the respective incomes or disbursements, as that would be a labor of months for a corps of experts.

Receipts.—From each State, a small general State tax.

From employers, a tax on payroll, the rates to be subject to hazardous nature of work.

From employers, fines for lax systems, failure to provide safeguards, poor management, etc.

From employees, assessment on weekly earnings over a certain sum.

General: Donations, legacies, subscriptions, etc.

From government appropriations in cases of catastrophe, business conditions, etc.

Disbursements: Compensation.—Relief, account of accidents; of sickness; of disability; of lost employment; old age pensions.

Statistical.—Registration and records of employees; adjustment of labor demand and supply; and adjustment of wages.

Educational.—Manual training, trade and domestic science schools and courses; educational clubs, lectures, etc.

With a fund created and disbursed as above the employer would know what his expenses for compensation would be, and would be also secure in the knowledge that some accident beyond his control would not wipe him out entirely. It would also be a satisfaction to know that his payments would go for compensation and not for litigation, as is too frequently the case now. The workman would be relieved from the fear that those dependent upon him might suffer through no fault of his own, and he should be a more efficient man on that account. By proper administration of the statistical department, the demand and supply for labor could be adjusted, and the terrific present losses occasioned by not having the right men in the right places would be largely overcome.

The ever-present fear in connection with a proposition such as I have outlined above is that of malingering. It is unfortunately true that, while the great majority of men and women are honest, many, even of the honest ones, regard the obtaining of easy money from a public fund as being all right, just as they would pick an apple from a full tree on the highway, with no thought of stealing. The custodians of mutual sick benefit societies among employees are well aware of this. Such commissioners as have reported from the various States in this country are of the opinion that very little fraud is practiced under the Compensation Acts, but the experiment is fairly new here, the observations apply to accident cases only, and the commissioners have not been long on the job.

Germany has for many years carried on a system of workmen's insurance or compensation that is probably the most comprehensive of any in existence. The published reports as to its success or failure are so opposed that it leaves one dizzy. It consists of accident insurance, sick insurance and invalidity insurance, of which the employers bear the brunt of expense, the employees the next measure and Imperial Government a small share. Society in general does not seem called upon to bear any part of the burden and this, I believe, is one of the strongest reasons for the criticisms that are made against the system. The Imperial Government seems to be well satisfied with results, as per the following extract from the report of Herr G. A. Klein, L. D., Imperial Counsellor and Permanent Member of the Imperial Insurance Office:

"The insight and the practical sense of the working people being increased, and the contrary views of workman and employer are being eliminated by the co operation in adjusting insurance affairs, is it not the working people that take part in the self-management of the sick clubs and insurance institutions? Is it not the most common workman that may have his seat in the Courts of the accident and invalidity insurance, and even in the Imperial Insurance Office, sitting next to the employer and the officials of the Empire, with an equal voice? Through all these circumstances foundation is laid for a feeling of greater legal assurance and satisfaction.

"In consequence of the relief furnished by workmen's insurance, numerous workmen are saved from seeking aid in charity institutions, which latter can devote now their energies in other directions, and can do better work there. Thus workmen's insurance tends to strengthen the spiritual and bodily health of the people, increasing the laborer's capabilities of working, and enhancing the military strength of the nation. So it proves to be a social political school for the whole people."

Review and Future.—"The workmen's insurance of the German Empire will be considered hereafter, through its introduction and through its achievements, a remarkable step of progress in the culture of the past century. It has grown to be what its founder intended; a positive furthering of the welfare of the workingman, and thereby of the whole people. It is clear that its capacities will grow extensively in the future, especially since the possible work of expansion and perfecting is being diligently pursued."

On the other hand I would call attention to the following extracts from an address by Herr Ludwig Bernhard, Professor of Political Science, University of Berlin, before the Association of German Iron Industries, Duesseldorf, March 24, 1912:

"Let us glance at workmen's insurance. You all know that the concept of insurance is sound at heart; it was indeed important to counterbalance the dangers of the workman's tasks, and to offset sickness and dread of old age.

"The more data accumulated, the clearer became the conviction that grave dangers are inherent in workmen's insurance in the form in which we now manage it.

"A survey of the medical literature clearly shows that instruction in stimulation and aggravation has actually become a special science since the introduction of workmen's insurance and through workmen's insurance.

"But even simulation itself is not the worst. A far more dubious phenomenon is the formation in the consciousness of the masses of a trend of thought which creates close connections between every illness and a title to a pension. As a result attention is ceaselessly directed to the conditions connected with one's own body, and those nervous phenomena appear which are called 'pension hysteria' by physicians.

"Formerly it was held in Germany to be manly and exemplary not to allow one's self to be crushed to earth by the misfortunes of life. The reserve power slumbering in man was to be brought into action to conquer by ignoring such ills and by becoming accustomed to them. Now physicians report that this virtue frequently flourishes only outside the working classes. They tell of merchants, employers, engineers, officials, scholars, and artists who discharge their callings even though they must bear the burden of sickness and trouble, and who even strengthened their energy by conquering their obstacles and prove themselves capable of distinguished services.

"I am far from asserting that this virtue and this strength of character cannot be found among workmen, but it can no longer be doubted that those potent qualities are imperiled for the great bulk of the population, since in the consciousness of the masses there is a living conviction that every illness and every accident must lead to a pension claim if only one's physical condition is carefully observed."

On the whole I believe that the success of workmen's compensation in its best is clearly a matter of administration. The principle is right, both for the relief of the employee and the employer. In any country, and particularly in ours, with its popular political conditions, the administration of a public fund and a public trust presents peculiar and ominous difficulties. How should it be administered?

There is a department of our Government that has always, but more noticeably in recent years, shown its great executive ability and its absolute honesty. I refer to the War Department, and I know of no other body of men better trained by education and selection to take charge of such an undertaking.

I have carefully examined many of the actual and proposed compensation laws of our States. The one redeeming feature of them is that they give the workman compensation instead of cause for action in court. This is as it should be. On the other hand they make the employer bear all the burden, either as an individual treating with individual cases, or as an insurer in State insurance covering his particular line of business. In the latter case he is not insured against further damages under the common law, and must, perforce, protect himself through the indemnity companies in addition to his expense for the State insurance.

The proper kind of compensation enactment, that will give compensation to the workman and protection to the employer, will be welcomed by both and will prove a boon to the country.

The details of this subject are so many, the subject itself is so important and the possibilities of proper organization and admiuistration so vast, that it has been impossible, with the time at my command and the limitations of a single paper, to more than touch upon what I believe are the fundamental principles of workmen's compensation as between employer, employee, society and civilization. But I do believe that the method of bringing proper relations between those concerned in workmen's compensation will ultimately have to be

on the lines that I have endeavored to describe in this paper. The subject is near to my heart, and I intend to go further into it from this time on. In the meantime, if I shall succeed in impressing on those who make our laws that the welfare of the employee is the earnest desire of the employer, but that such welfare is distinctly dependent on the welfare of the employer as well, I shall feel that I have accomplished much good by the work I have done.

Discussion.

The President—This matter which has been under discussion in our Legislature is very important to those engaged in the gas business, as well as to every other business that employs any volume of labor.

Mr. Cooke—While I do not think I shall be able to add anything to Mr. Thwing's paper, it occurred to me, in following it there was a possibility of conditions being bettered so far as labor is concerned in its relation to employers, by the proper application of some such law as outlined. Many places are seriously affected in their industrial-commercial interests by labor unions. Labor is entitled to organization for protection, and I do not believe they should be looked upon as organizing for aggression, and if we could get beyond that point, unions would become, in my opinion, a valuable asset. I think a town which has a well-organized labor body, conducted on proper lines, will bring relief, in that labor will control itself and work in harmony with the manufacturers. Perhaps I can illustrate my view by referring to the utilities bill, just enacted and becoming effective May 1st. No doubt every public utility industry felt that a public utilities bill would be a bad measure. I believe, however, the more one considers the proposition and the better one becomes acquainted with its functions, the more you will realize its value, and find you will be relieved of certain difficulties which were not really in the bill, but only in your imagination. I would like to see the time come, if it ever does, when we can look upon organized labor with the same view that we now look upon utility bills that are gradually being adopted by the cities of the United States.

Mr. Riley—In line with this subject let me say that at the banquet of the Manufacturers' Association the speaker of the evening was Congressman Redfield, of New York, who is one of the large manufacturers in this country. In his remarks he stated the time had now passed when men were to be cast on the scrap heap like so much worn out machinery. The real value of the statement is that the Congressman has been appointed by President Wilson a member of his cabinet, so Mr. Thwing will be able to get very valuable information from Mr. Redfield.

The President—Mr. Battin, you have many employees under your charge?

Mr. Battin—I don't know that I can add anything to what Mr. Thwing said, save that we should be very grateful to him for having brought this subject up, for it is a subject that should be very near to us all, and it would do more towards making the plants harmonious if we could follow the suggestions he makes than anything in the line of machinery could possibly do. In other words, the more sympathetic are our relations with our workmen, the easier the operation of our plants and the more successful our results.

Mr. Dunbar—The workmen's compensation law, would be all right provided it were universal in application. I would have it include everything that Mr. Thwing enumerated as being desirable, not only accidents, but sickness, death and misfortune. Unconsciously it seems we drift towards fraternalism, in that every other man in the land is trying to reform the man higher up without taking any thought regarding his own virtues, honesty, or integrity. People find more fault with John D. Rockefeller than with anyone else, yet I always thought he was a man possessed of much inherent virtue. In connection with the Sears-Roebuck investigation in Chicago it was suggested there should be a minimum wage for every woman; now I think that would be all right, provided a minimum wage could be applied to every man and woman in the land. In an argument the contention was that the janitor of a church should be paid not less than $35 a month, I suggested a minimum weekly wage for domestics of $5 and board, and everyone present opposed it. It was right to fix the standard for someone else, but when it came home it was a different thing. I wish we were so thoroughly imbued with the spirit of fraternity and brotherly love, with all the qualities and virtues going to make one a good citizen, that a man unfortunate in the natural course of events could be taken care of. I am opposed to a workmen's compensation law that applies only to corporations, which seems the full extent and purpose of those back of the measure. It is unfortunate indeed that the idea is not in the minds of the great mass of our people that justice should be meted out to everyone regardless of the position he occupies in business, or regardless of how far his genius, industry and ability may have enabled him to succeed in life. I favor everything having a tendency to work for the amelioration of man's lot, and I would be in favor of the workmen's compensation law if it were universal in its application.

Mr. Graf—I do not feel I am at all competent to discuss the matter so ably brought out by Mr. Thwing, yet I have always had decided views on the relations of employer and employee, and many points that Mr. Thwing brought out are important. One of these is the fact that workmen get practically little of what we pay for protection. We take out liability insurance because we must, but the insurance companies won't pay a cent unless they know they are up against it. No matter who or what the concern is, I believe the interest of your workmen is second to no other item in your business; further, having a valuable man, we wish to care for him if sick, whether from accident or otherwise, from and out of our own income; but now we do not feel we are justified in so doing. We have had cases where we compensated men who had been hurt in a way we thought was sufficient, and later had to face a law suit. We, I believe, realize that the bill which Messrs. Thwing and Dunbar have in mind (it would be ideal) is too much to hope for just now; but if a start were made in the right direction conditions would so be bettered as we could learn by experience. I sincerely hope to see some form of legislation that will at least cover actual accidents, if nothing else.

Mr. Danforth—About all I can say regarding this paper was said by Mr. Thwing. Mr. Graf's sentiments and mine coincide. The money corporations have been paying to the insurance companies, which in turn has been paid mainly to lawyers, does not go where it belongs. It should go to the workmen. Many accidents are due to carelessness and the like, but accidents will happen, and I believe the money should go to those to whom it will do the most good.

Mr. Maxon—I agree with the statement made that the large sums of money paid out by corporations to liability insurance companies fail largely in their purpose, in that those who really should be taken care of are not. A plan I have had in mind seems possible of being carried out to a feasible termination. The scheme is to interest those who operate a sufficient number of properties to justify the establishment of a fund, to be built up from like payments by a number of operating companies, such payments to be in about the proportion we pay for liability insurance, and take care of our own people. This I believe would give immediate action, in that a growing fund might be established that, even if it embraced only the payment of amounts equal to those we now pay to liability insurance companies, would take care of all the accidents incurred in the operation of gas properties; but it probably would not be a sufficient amount to take care of other compensation. With individual companies, of course, such a plan would not be practicable. At the same time most of the progressive gas companies see that their employees in case of accident are taken care of without regard to laws or liability insurance premiums. Indeed, we find it possible to settle damage cases and take care of the employees in a better manner than when depending upon the bargainings of liability insurance attorneys and adjusters. The feeling of security is about all we get from the payment for liability insurance, and we find as a rule that, unless we take pretty effective action in connection with the adjustments, we are in trouble in spite of the fact that we undertake to prepare ourselves for it.

The President—Will Mr. Thwing close the discussion.

Mr. Thwing—This subject is so big, and it seems there is so much to it, that it is absolutely impossible to cover it in a single paper. What I endeavor to cover in the paper is that the employer and the employee are mutually responsible to each other. That an enactment of law that injures one is bound to harm the other, and that the employer, from such very fact, being a part of the factor of civilization, is entitled to as much consideration as the employee. At the same time, I believe the latter should be entitled to every consideration. Workmen have built the world, and they are the world's source of wealth. The capital they have is only in their strength, skill or intelligence, and when that capital is impaired, for any reason whatever, they should be compensated. Now, this may come almost to socialism, and while I am not a socialist, at the same time I have strong convictions on the subject of workmen's compensation. Mr. Dunbar spoke about fraternalism. I am a believer in it. The oldest and best prayer ever taught us, begins thus, "Our Father which art in Heaven." The employer must act as a father very largely to his employees. Ninety per cent. of the people in the world require somebody to take care of them, to look after them, to direct

them. This matter of the compensation law applying to corporations only. I am not aware that any compensatory law applies to corporations only. The main trouble with most of these statutes is they apply to those who have five or more employees. Another false and misleading thing in the proposed compensation acts, compared with the actual compensation acts of other countries. If I, as an employee of one who employs only 3 men, become injured, I have no recourse under the compensation acts, which seems to me actively ridiculous. Anyone who employs even one person, a maid, a hired man or servant of any kind, should be as responsible for the safety of that employee as the one who employs 100 or 1,000, and the thing that most I want to be on record as favoring is compensation not limited to or by accident. Why should the man who has met with an accident be entitled to more compensation than if he were beset with sickness? Suppose, for instance, in a factory giving work to a large number of people, a boiler explosion occurs, due to no fault of the management, but probably to the carelessness of the engineer; say, 12 people are killed and 50 injured. The manufacturer is liable under our present laws to each of those persons, killed or injured, and in the default he would probably be put out of business. On the other hand, again taking the same place. There happens an epidemic of typhoid or smallpox, etc., because of which 50 people die and 100 are incapacitated. Nobody is responsible, but the earning power is gone, and the men who represent the value of the country and the worth of our civilization suffer, whereas, if they met with the misfortune by accident they would have recourse against an individual. Another point. The responsibility should not be on the individual. The employer takes his chances. He has the courage, the initiative, the resourcefulness to go into business, to take chances. Why should he be personally responsible for anything that may happen in the way of an accident? This should be a burden on the State. As I insisted in my paper, the employer should bear no more than his *pro rata* share, and the employee too should bear his share. Gentlemen, this subject appeals to me. I have read at night; I have studied at night. I wrote this paper probably 20 times only to burn it up; and I am not satisfied with it now.

Mr. Dunbar—I would like to ask Mr. Thwing a question. He asserted that anyone who employed more than 5 men is liable for any accident and that those who employ less than 5 men are not liable for an accident. I would ask him if the farmer is not exempt. Say the farmer employs 20 men. If I understand Mr. Thwing correctly, should one of those men be killed, is he not liable?

Mr. Thwing—No, not by any of the laws that I have seen. Most statutes limit damages to the employers of 5.

Mr. Tolles—Although I feel I am an interloper, yet I know I am among friends. I am connected with an organization that publishes a magazine, and I want to say I consider this one of the best papers I have read or have heard read before a convention. I want permission of the author and this convention to present this paper to our Magazine with a view to our publishing it, giving due credit to Mr. Thwing. I believe it will do much good. You have started something here. I like particularly the thought of mutual responsibility, and, more than anything else, I value the trend of thought of the times along these lines. That is where responsible people are taking the big, broad, generous viewpoint, instead of simply the narrow one of 10, 15 or 20 years ago.

The President—This is surely a very large subject, for the State of Indiana 2 years ago passed a workmen's compensation act. This year it was amended, and I do not know what has happened to it. We will all learn something about it very soon. The hearty thanks of the Association are tendered to Mr. Thwing for his valuable paper, and we hope he will keep up the good work. Next we have the

REPORT OF THE BUREAU OF INFORMATION,

which is one of the most valuable communications we have. I hope you will give to it close attention. Many questions and answers are given, and as the Chairman reads these, those who wish to discuss any question can be attended to at once, and thence to the succeeding query. Mr. O. O. Thwing reading:

Mr. President and Gentlemen—At the last meeting of this Association our then President, Mr. S. E. Mulholland, recommended that a Bureau of Information be established. This recommendation of the President was adopted, and it now becomes my duty, as Chairman of this Bureau, to report to you the work done by it during the past year. While the small number of questions and problems submitted to the Bureau was disappointing, still I believe those now presented to you will be found of interest, and that their presentation and discussion will form an interesting feature of this meeting, and demonstrate the value of the Bureau, and will result in an increased interest in it for the coming year. The members of the Bureau, when called upon for information by the Chairman, have cheerfully done their part and gave all their best in response. Every effort has been made to give intelligent and correct replies to all inquiries, and I trust that further information will be produced during the discussion of this report. The first inquiry to be submitted is from Mr. Jas. W. Dunbar, as follows:

Question.—"What are the advantages and disadvantages in the use of steel pipe for high pressure distribution of gas over the use of wrought iron?"

This inquiry was referred to Mr. Fred. W. Freese, who replied as follows:

I would say, that the main reason wrought or steel pipe is usually used is that most high pressure lines are 4 inches or under in size, and costs less; but there is no question in my mind that cast iron pipe will answer every purpose that wrought or steel pipe will, if properly laid, providing it be 6 inches or larger. We all know that cast iron pipe will last very much longer, in most all kinds of soil; and for that reason when 6 inches and larger, cast iron should be used. But when it comes to 4 inches and under, I believe steel or wrought pipe would be best, as it is not so easily broken, and the first cost is much less.

Further reply from the Chairman is as follows:

With further reference to the reply of Mr. Freese, which, in my opinion, correctly covers the subject of the inquiry. While in actual cost for the pipe itself there is very little difference between cast iron and steel in the smaller sizes, still a very considerable saving can be effected in the cost of trenching and installing the steel pipe in place of the cast iron. Add to this the fact that cast iron pipe 4 inches in diameter, or less, is very liable to breakage, makes it desirable to use the steel pipe for high pressure service. By the term "high pressure" I mean gas that is distributed under a pressure of 15 pounds or more, since the distribution of gas at less pressure is usually for the purpose of boosting sections of a system already installed, or temporarily in a new high pressure plant, on account of the small consumption that exists for quite some time after a new plant is started. The "Gas Institute News," September, 1912, Vol. 1, No. 8, on page 219, referring to the subject of high pressure mains, notes as follows:

"We stated that in high pressure distribution an iron-to-iron joint should be used; that neither lead nor cement joints could be relied upon for this purpose, and that the employment of wrought iron or steel pipe would seem best. Cast lead joints can be made tight when the pipe is laid, but it is a notorious fact that, owing to contraction and expansion of pipe, or settlement of ground, such joints very often leak. Cement joints on larger mains under 20 pounds pressure, can never be made absolutely tight, because the pure cement in setting will shrink and draw away from the bell. The fissures and leakage in the joints produced by this shrinkage are quite minute under light pressure, but, under a pressure of 20 pounds per square inch, will become of sufficient moment to cause serious trouble and condemn the joint. Joints using rubber as a packing material, bolted in front of lead or cement joints to insure their tightness, are of problemetical value. They fill the bill as long as the joint itself remains tight, but when this gets to leaking, and when gas, or what is worse, oily condensation, ensues the rubber ring packing of the clamp will be eaten up and the contrivance will become valueless. Another advantage of steel or wrought iron over cast iron ones is their much greater strength. This is an important consideration, especially in the case of an isolated district fed by a single, high pressure line. A break in such a line in the winter season, with frost deep in the ground, would indeed be a serious matter, and might greatly interfere with the gas supply."

The following lists of questions were received from Mr. B. H. Danforth:

1. "In cities of 5,000 inhabitants is it profitable to install gas arcs without selling the arc to the consumer?"
2. "If the lamps are not sold will they remain in service as long as if they were sold?"
3. "Do companies, that sell the lamps, generally have a large sum of money invested in lamps which are not in use?"
4. "What is the depreciation in per cent. per year for gas arcs?"
5. "What is the average consumption per year of a gas arc lamp?"

Mr. Danforth's questions were referred to Messrs. Howard L. Olds, J. J. Knight, B. J. Kellum and Mr. Philmer Eves, from whom the following replies were received:

1. "This question is largely a local one, and the factor governing the decision rests in entirely how active the electric company is, the rates it charges, and the rates the gas company is charging. I believe gas companies are always warranted in installing gas arcs, with only a maintenance charge each month. Electric companies will install electric arcs free of charge, and the cost of these lamps is over double the cost of gas arcs."

2. "They undoubtedly will remain in service a longer time, where the company installs them free, than where the customer purchases the lamps, on account of the gas company taking better care of the lamps and taking much more interest in their success."

3. "The amount of money invested in such installations is not large, and I believe excellent results will be brought by their use. The gas company is warranted in carrying this as a capital investment."

4. "It would be perfectly proper to charge a certain per cent. each year for depreciation of the lamps, so you will ultimately wipe out this investment."

5. "The average consumption each year for gas arc lamps is 30 000 to 40,000 cubic feet. The most important question of all is to get the business, and if you can do so, by the installation of gas arcs, any gas company is warranted in doing it.—H. L. OLDS."

"As to just what the depreciation per year on an arc lamp would amount to is hard to say. Our upright lamp is practically indestructible, when installed under the rental plan, for the rental, covers the maintenance cost. We have every reason to suppose that the inverted type of lamp will prove equally durable. It is only fair, however, to 'write off' these lamps, and I would suggest that a 20 per cent. depreciation charge would seem about right. We estimate the average yearly consumption of an arc lamp to be about 18,000 feet.—J. J. KNIGHT."

"Some of the answers to the questions are debatable, as authority differs. My personal opinion is: (1.) That gas arcs should invariably be rented by the gas company, as by this method satisfactory service is assured; and, furthermore, (2,) in my judgment lamps that are the property of the gas company will remain in service longer than those that are sold outright, if for no other reason than for the better service provided, and the fact that, where the lamp is rented, the gas company must necessarily receive notification of any displacement, which would give it an opportunity to protect its business, which would not be the case if the lamps were sold outright.

"Your third question is not entirely clear to me, for the number of lamps that are not in use should simply be a question of merchandising, unless this question is based upon the supposition that a policy of rental necessarily means an accumulation of a lot of used lamps that have been displaced by other methods of lighting. There are only two possible reasons for such an accumulation, and both can be provided against. One of the reasons for lamps coming down is poor service, so the remedy is obvious; the other reason would be the lamps becoming obsolete. The remedy for that should be to arrange the rental rates on a basis which would make it possible to charge off the original cost of these lamps in from 3 to 5 years—the latter I believe is the usual practice. (4.) The cost of keeping an arc lamp in repair is very small, as the parts that have to be renewed are not many and are inexpensive, and these are usually covered by the maintenance cost. If a lamp has been properly cared for, it should be as good at the expiration of 5 years' service as it was when first installed. Where the depreciation would come in is in the lamps becoming obsolete through improvements and changes in the style of the appliances. (5.) In general practice an arc lamp used for commercial lighting is supposed to be in use on an average of about 5 hours in 24 throughout the year. The consumption would depend upon the character of the lamp used, as well as the character of service in which it is used.—B. J. KELLUM."

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1. "It is profitable to install gas arcs with a reasonable rental charge. The area being comparatively restricted, efficient and satisfactory lighting service, which brings patronage and revenue to the gas company, can be secured by careful 'inspection and maintenance' at less cost than in a larger territory where time and expense in reaching the installations figure as items of maintenance cost.

2. "Lamps will remain in service as long as if they were sold, if made to give adequate and economical lighting service, by being properly maintained.

3. "The investment in unused lamps is generally considerable, and is mainly caused by the advent of improved gas arcs. Hence the necessity for adequate depreciation allowances in fixing the rental charge. This precarious life of an arc is one of the strong arguments in favor of the rental plan protected by a just depreciation. It is preferable to compelling a gas consumer to continue the use of an out-of-date lamp simply because he bought it.

4. "A depreciation allowance of 50 per cent. per year and a rental charge of $1 per month, including maintenance for outside arcs, and of 50 per cent. per year and a rental charge of 75 cents per month, including maintenance for inside arcs, would, without loss to the gas company, provide for retiring the arc in 2 years (if advisable to install a more advanced type or of arc), and would also provide a sufficient fund to cover actual cost of maintenance.

5. "The consumption averages about 30,000 cubic feet per lamp per year. (Signed) PHILMER EVES."

Discussion.

The President—This should bring about a good, snappy discussion. Mr. Powers?

Mr. Powers—It is quite some time since I was in the gas arc business. Other gentlemen here are better qualified to discuss this matter.

The President—The real point is as to whether a company is warranted in the free installing of gas arcs.

Mr. Powers—Some years ago when, actively engaged in the arc lamp business, I believed it was more profitable for the gas company to place the lamps on a rental basis than to sell them, in that their efficiency was kept to a higher point, the gas company being more interested on the rental basis than on straight sale basis. The rental basis of installing arc lamps is the proper one from the gas company's point of view, from my experience.

Mr. Elder, Jr.—My experience in the gas lighting business is that if the consumer owns the arc it is always in a bad condition. The consumers cannot possibly get as good service from such a lamp, wherefore, it is a bad thing for the gas company to have that lamp in service. The gas arc lamp put out on a rental basis and kept in good order brings in greater revenue than one that was sold.

Mr. Barnes—I disagree with the gentleman. I would rather sell the gas arcs and get the money. "A bird in hand is worth two in the bush." If you do not keep up the arcs after selling them I fail to see how you will keep them up when renting them. We do not sell a lamp unless a maintenance contract goes with the sale, which insures the lamp will be kept clean. If we cannot sell the lamp we make a rental proposition. Prior to my connection with the Columbus Company my other employers always sold them; we never rented them. I am not prepared to give you figures on depreciation or other costs; but certainly there is investment and depreciation, and you cut profits when you rent the arcs.

Mr. Danforth—I asked this question because I couldn't sell arcs outright; our people would not buy them. The towns which the Company I am with all have municipal electric light plants, with very low rates, hence the merchants would not buy gas arc lamps. A customer who wanted to buy a gas arc lamp said that in Fort Wayne they put the lamps out for 25 cents a month, and kept them clean. They didn't have to buy them. "Well," I said, "we are not quite big enough to carry that sort of an investment on our hands right now." And his reply was, "Well, if you are not I am not." He also said—the chap to whom I was talking was a pretty good business man—that if we didn't have faith enough in the arc to put it in for him that something must be wrong with it. Again, our predecessor had sold a party two arc. Going downtown in the morning I usually felt pretty good, but if I passed that fellow's store on a dark day and saw his gas arcs my good spirits vanished. His globes were dirty and cracked; one mantle was off; they were a disgrace. Other consumers in town owned their arcs and were paying for the upkeep, so I couldn't very well clean this fellow's up free of charge. He was a grocery-keeper, so I swung my trade over to him and got it fixed up all right; but I wish to say, had I my own way about it, I would never sell a gas arc. Since we put them out on a maintenance basis we installed 52 inside of 2 months.

Mr. Maxon—I will chance saying something on this matter of gas arcs, although it is a pretty well frazzled-out, threshed-out subject. It looks to me that friend Barnes is decidedly in a minority. I thought almost all gas companies had got away from that basis. I was particularly interested in noting the figure of $1 per month named for

outside lamps as a maintenance price, and 75 cents a month for indoor lamps. I hope everybody concerned in the installation of gas arc lamps, on the basis of the lamp being furnished by the company, will think about that point. The attitude of a man trying to sell gas is usually this: He seeks the lowest terms that may be had of the management to offer the consumer, and perhaps does not take into full consideration the fact that the investment may become large beyond the point of profit. The Company in whose employ I am, has just started in the installing of gas arc lamps. Already some 1,600 are up on a rental basis of 50 cents for outside arc lamps per month; inside lamps being charged for at 50 cents for the first two, and 25 cents for each over. Making the entries for the business every month, we charge ten cents per month per lamp, which rate will retire the investment in about 7 years. These figures, however, seem entirely too low under average conditions; however, circumstances must govern the methods used, and our circumstances embrace the conditions of competition. If your competition is from a municipal electric plant, the securing of the gas lighting should be about 4 times as easy as if an active, privately-owned electric company were against you. If there be an active electric company following out the methods usually followed by these companies—I do not like to name their methods—it is hard to say what to do. However, one way is this: The installation of gas arcs, I think, is the one good way to secure lighting business in the face of electric competition, and I believe the results obtained will be sufficient to warrant gas companies making the investment, provided they take care of depreciation and provided they make the rental charge sufficiently high to protect them from loss. I may add, that the figures which we are now getting for rental and maintenance with the number of arcs we have, show a loss. With a largely increased number of lamps, we hope to make a paying proposition out of it.

Mr. A. S. Cooke, of Terre Haute—We have now 1,500 arc lamps in use. We put them out on what we call the insurance plan. We didn't quite like the idea of a rental basis or a maintenance basis. The rental idea might lead the man to believe he was paying rent for the lamp. The maintenance might suggest the possibility that it was a difficult piece of apparatus to keep up, so in our advertising matter we refer to this particular line of work as an insurance plan. Mr. Maxon brings out forcibly and properly the methods of the electric men, and I cannot see how any one could suggest even the idea of trying to sell arcs, especially in commercial districts, in face of the fact that they will put up that type of apparatus without charge. To keep business and to gain it, I don't know any better way for a gas company to invest money than in good, up-to-date gas appliances, putting them out on a plan which will bring consumption. In order to insure our book account, we charge off 2 per cent. a month. We charge 50 cents a month each for the first 5 lamps; from 6 to 10, 45 cents; from 11 to 15, 40 cents; from 16 to 20, 36 cents; for 25 and over, 25 cents.

Mr. Barnes—I believe I am a minority of one. I would ask if a member got a chance to sell his lamps for cash would he do so or not? To a consumer who wanted to buy the lamps would you reply, "No, sir; I wish to rent them." In the years gone by we laid free services and free lines, and I know of companies that rented ranges. We changed our policy, the only thing we give free is advice, and we give a lot of that. The general public do not want something for nothing; they want to pay for it. We pay for everything we get from utilities. The electric light company, and the gas company in most cases, get their money in advance. I think the gas companies make a mistake by giving things away. It shows too large a profit somewhere else. Somebody has to pay for it, and I think the word "free" in our business is a bad thing. The minute we get away from the "free" idea we will be better off, and people will think more of us. You often find an electric light company giving things away. To the man who tells me "The electric light company gives its arcs away," I reply, "Very well, but who pays for the arcs? How can they offord to give them away? Their profit must be very large if they can afford to put in 3 or 4 or 10 arc lamps." When selling arc lamps you are dealing with business men who understand profit and loss.

Mr. Kelsey—It hardly seems fair to allow Mr. Barnes to stand alone on this proposition. It seems to have worked out so well with us that I will narrate some of our experience. We have in service perhaps 25,000 gas arcs. Rather against the advice of men who should know about the business, we sell gas arcs outright. A result of this, as to the older type of arcs, is the Company takes them back at a nominal sum, allowing a certain amount for each on the later type of arcs installed, and a place for the old arcs can be found in factories or storerooms where appearance is not a big feature. It was found very easy to place almost every one of the older types of arcs. One of our largest orders was on a proposition the basis of which was that the Company paid for every inch of pipe throughout the plant, and also the full value for the arcs, and this consumer is put ting in more arcs every day.

Mr. Eves—There is a great diversity of opinion as to the actual gas consumption we get from the gas arc. The most carefully compiled estimate I have been able to find gives these average figures: In apartment houses, 14,670; offices, 43,200; factories, 18,000; repair shops, 15,300; amusement places, 39,600; wholesale establishments, 22,500; retail establishments, 30,600; saloons, 63,000 cubic feet. This shows an average per gas arc of 30,853 cubic feet per year. It agrees with the estimate furnished by Mr. Olds, but differs materially from that given by Mr. Knight. It all depends upon the class of business you get. Seemingly the most profitable places are the saloons, offices and retail establishments.

Mr. J. H. Maxon—We have with us Mr. Cawley, of the Peoples Gas Light and Coke Company, of Chicago, in which city 100,000 gas arcs are in use.

Mr. Cawley—I did not anticipate saying anything during this meeting, especially as to arc lights. It is true we have perhaps 100,000 arc lights in Chicago. Mr. Kelsey told us a very nice story, and I know it is true. They are close neighbors and we keep in touch with them. But in keeping with the Company, I am strong on the rental basis. We believe the great bulk of the arc light business is to be held in one way, and that is by keeping the arc up to its highest efficiency. From experience of other cities, one does not get that high efficiency from lamps that are sold. They invariably run down, perhaps not for a month, or if they are set in a clean place for a little longer; but if not taken care of they soon lose their efficiency, and are marks then for the electric people to ridicule and laugh at, with the result that new electric lamps go in. The arc light is the greatest agent for securing the lighting of large spaces, and the proper way to get the business and to hold it is on the rental plan, based entirely on maintenance service. The secret of success in the whole thing is the up-keep of the lamps, for in no other way will you keep your light in condition as when on a rental basis.

Mr. Dunbar—I believe the introduction of gas arcs is governed largely by local conditions, excepting that when gas arcs are sold, you cannot expect them to be used efficiently and economically unless the gas company has a contract to maintain them. When gas arcs are sold, I do not believe the Company keeps them up as well as when they are rented. The best way apparently is the rental plan. The Company with which I am connected is an electric and gas combination. The electric people bought out the gas department, and for many years did everything in their power to persuade people to use electricity instead of gas. The result was that the gasoline machines got into New Albany and Jeffersonville, and I finally persuaded our folks to fight the installation of gasoline machines with gas arcs. The matter was given over to me, and I was greatly surprised at the results of my endeavors. With the gas arc we stopped entirely the sale of gasoline machines, and I believe undoubtedly put out of existence 95 per cent. of those that had been in use. I think companies having both gas and electrics make a great mistake when they try to sell one in preference to the other. I believe both should be installed to their best advantage; the best in gas and electricity available. Then let them decide; but for the purpose of fighting gasoline and keeping off cheap illumination from oil, etc., nothing else equals the gas arc. I am decidedly of the opinion, with our composite plant, that our interests are best conserved by renting the gas arc. I listened with much pleasure to the lecture of Mr. Tolles on salesmanship, and perhaps if some of us were more thoroughly equipped in that direction, we might be able to go out and do just exactly what we want. I have noticed that some men can be approached in the morning, and that some other men should not be approached until after they have had dinner. That applies in our local situation. We have to take all the circumstances into consideration, and then work out our own salvation.

The President—Mr. Ray I believe has a gas and electric property under his charge. The question is as to the installation of the gas arc lamp.

Mr. Ray—I am sorry I was not in the room during the principal discussion of the paper. We have a small property, selling both gas and electricity, and try not to duplicate our investment. We have

(*Continued on page* 242.)

THE AMERICAN GAS LIGHT JOURNAL

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NEW YORK, MONDAY, APRIL 14, 1913.

[Official Notice.]

Ninth Annual Meeting, Southwestern Electrical and Gas Association.

Office of the Secretary,
Slaughter Building,
Dallas, Tex., April 5, 1913.

To the Members: The Ninth Annual Convention of the Southwestern Electrical and Gas Association will be held at Galveston, Tex., May 21, 22, 23 and 24—a 4-day meeting, instead of 3 days, as heretofore, the Association having so increased in scope and numbers as to necessitate more time for its proceedings. In addition, it has been found necessary to have "parallel sessions" for the gas members and the accountants, these to "parallel" regular sessions which are on subjects not interesting to those attending the gas and accounting sessions. One full session will be given up, as heretofore, to the "Supply Men," who have promised that it shall not be the *least* interestinng session of the Convention. This will be followed, in the evening, with a "Rejuvenation" of the Sons of Jove, at which the National Deities will preside.

A large attendance is expected from the East and North, two special cars having already been reserved, from St, Louis to Dallas, where it is expected to "hitch on" enough Texas delegates to make a solid "Convention train" from there to Galvoston.

The official and definite programme, with list of papers and topics for discussion will be published in a short time. Full information as to railroad rates and routes, hotel accommodation, exhibits, etc., may be obtained by addressing the Secretary, as above.

Yours truly, H. S. Cooper, Secy.

[Official Notice.]

Fifth Annual Meeting, Southern Gas Association.

Office of the Secretary,
Southern Gas Association,
Atlanta, Ga., March 29, 1913.

To the Members: The Fifth Annual Meeting of the Southern Gas Association will be held in the Selwyn Hotel, Charlotte, N. C., Wednesday, Thursday and Friday, the 16th, 17th and 18th days of April, 1913. The list of papers to be contributed for discussion is as follows:

"Practical Ventilation," by Mr. McD. Dexter.
"Selling Domestic Appliances," by Mr. G. W. Howsmon.
"Industrial Appliance Campaign," by Mr. H. C. Porter.
"Management of Medium Size Gas Properties," by Mr. H. H. Carr, Raleigh, N. C.
"The Present Outlook, with Future Prospect, of Gas Plant Residuals, with Particular Reference to Tar," by Mr. S. R. Church.
A paper, by Mr. R. C. Congdon, Atlanta, Ga.

The Charlotte Gas and Electric Company is making every possible effort to have this meeting returned as the greatest in the history of the Association; and, from personal assurances, volunteered all along the line, the attendance will be large and representative. There will be no reduction in railroad fares, and you must make your hotel reservations, through Mr. Henry Collins, Chairman Hotel Committee, Charlotte, N. C.

The entertainment programme will be announced later.

Truly yours, E. D. Brewer, Secy.-Treas.

[Official Notice.]

Ninth Annual Meeting, Iowa District Gas Association.

Iowa District Gas Association,
Office of the Secretary,
Des Moines, Ia., April 7th, 1913.

To the Members: The Ninth Annual Meeting of the Iowa District Gas Association will be held in Burlington, Ia., May 7th, 8th and 9th. The headquarters of the Association will be at the Burlington Hotel. Early reservations should be made to secure the best accommodations. Mr. E. D. Clary, Superintendent Burlington Gas Light Company, Chairman of the Committee on Arrangements, will make reservations on request. The following papers are promised for the meeting:

"The Prepayment Meter" (an answer to Mr. Weisgerber's paper of the last meeting); by Mr. Thos. Crawford.
"The Welfare of the Employee," by Mr. G. W. Clabaugh.
"Operating a Store Room," by Mr. W. H. James.
"Recent Developments in Industrial Appliances," by Mr. E. C. Weisgerber.
"Advertising," by Mr. Fenton P. Kelsey.
"Improving Operating Conditions for the Small Works," by Mr. H. G Stillson.
"Reducing Boiler Fuel in Water Gas Manufacturing," by Mr. T. B. Genay.
"Some Distribution Experiences," by Mr. W. H. Merritt.

Mr. E. G. Pratt will discuss the oil situation. In addition, the following Standing Committees will report: Manufacturing, Distribution, Construction, New Business, and Public Relations.

On May 8th, the convention will go by steamer, on the Mississippi, to Keokuk, returning the same evening. One session will be held on the boat. The afternoon will be spent inspecting the new dam and power plant. Other attractive entertainment features are being arranged. G. I. Vincent, Secretary.

[Special Editorial Correspondence, by Telegraph.]

FIFTH ANNUAL MEETING, PENNSYLVANIA GAS ASSOCIATION.

The Colonial Hotel, York, Pa., April 10, 1913.

The Pennsylvania gas men met in fifth annual session this morning, with the concomitants of fine spring weather, a large attendance, and an enthusiastic leaven. All these aids, of course, put President Ganser in his best form; and that degree of his form is surely exceeding. However, he did look the presidential heritor when, the session having been called to order, he introduced Mayor Leafan, who certainly is *en rapport* with the history of York; for it was in this old Borough as he reminded us that the Continental Congress meditated in the very dark days of the period during which America was getting together the strings of her decree of divorce from Old England. The Mayor's welcome was followed by a speech from Mr. Grier Hersh, President of the York Gas Company, who also welcomed the delegates on behalf of the Company, which is the satisfied owner of one of the best equipped gas plants in the State. Other invitations to accept the freedom of our city were heartily tendered by the local electricians and the managers of the water works. Mr. L. R. Dutton having gracefully acknowledged the invitations, the regular order of business was speedily assumed. The Report of Council amongst other things showed that 41 applications for membership had been considered. The Secretary-Treasurer's report, which showed a satisfactory state of affairs respecting the routine of the Association, was followed by some important reports from committees, notably that on the relations of the Association towards the architects. Other routine business having been disposed of Vice-President Dutton assumed the Chair while President Ganser read the inaugural message, which document was brimming with interest. A particularly well-thought out section in it was the relation of the industry towards street lighting. To Mr. Keppelmann fell the sorrowful task of formally making known the regard and esteem they all entertained for Mr. C. E. Titzel, of Lancaster, whose taking off was all the more regrettable through its suddenness. At this juncture Mr. J. E. Philbrick, having been presented with the cap and badge of a policeman, was notified of his appointment as Chief-of-Police *pro tem.*, which appointment acted as "a soother" to those who feared that which would happen them did this important official be at all unfriendly. The first topic taken up was that of "Selling Campaigns," and it certainly led to a brisk discussion, the general tenor of which was that it was a mistake to use other than one's own men in such campaigns. Just prior or just after adjournment of the morning session Mr. Philbrick, on a "hurry call" gave an excellent practical illustration of how the pulmotor should be used in resuscitating sufferers from gas poisoning, electric shock, etc. The afternoon session was begun promptly, and following the report from the Committee on Nominations, these officers were elected for the ensuing year:

President.—J. A. Frick.
First Vice-President.—L. R. Dutton.
Second Vice-President.—J. W. Murdock.
Secretary-Treasurer.—W. O. Lamson.
Members of Council.—J. H. Keppelman, G. S. Speaker, F. Dugan and J. M. Gaylord.

Allentown having been selected as the next place of meeting, the paper list was taken up. The first to be discussed was that by Mr. Grier Hersh, whose excellent presentation of the subject of "Valuations of Gas Companies for Rate Making," led to a discussion of extraordinary interest. The paper by Mr. C. M. Cole, on "High Pressure Distribution," also brought out a good debate. The discussion of the topic "Prepayment Meters" closed the open business for the day, and at 4:30 the Association went into executive session. The vaudeville show this evening was enjoyable from many and different points of view; and we are all ready for our visit tomorrow to famous Gettysburg, a name that will stand forever prominent on the most prominent pages that record the world's history.—S.K.C.

York, Pa., April 11, 1913.

The trip to Gettysburg was undertaken by a party numbering 85, and the comfort of the special train that conveyed us to the famous battlefield was in pointed contrast to the cold airs and threatening skyes that beset those who had to foot it anywhere. The morning drive to the historic spot, just north of the city, was nevertheless en-

joyed by the party, as was also the excellent dinner subsequently served in the Eagle Hotel, which comfortable abiding place is located in the South Village.—S. K. C.

YORK, PA., April 11, 1913.

April showers are in evidence. Mr. George G. Ramsdell, Secretary American Gas Institute, speaking forcefully in respect of the proposed Gas Congress, had the satisfaction of hearing affirmative action determined upon; and the matter of affiliation with the Institute was also favorably discussed. The regular order was proceeded with, the details of which will come to you later, and these are sure to be enjoyed by your readers in due time. The "Smoker" is on for tonight, and we are, judging from the rumors in circulation, to have something out of the ordinary. Knowing your going to press time, I will not send anything further now. In closing this despatch, I feel bound to say that the gas men of Pennsylvania have ample reason for pride over the spirit that directs and upholds the work of their Association.—S. K. C.

BRIEFLY TOLD.

DEATH OF MR. COLIN CAMPBELL SIMPSON.—With exceeding regret we are obliged to chronicle the death of Mr. Colin Campbell Simpson, Assistant Secretary and General Superintendent of Mains and Services, New York Consolidated Gas Company, and for 40-odd years prominently identified in an engineering way with one or another of the Companies now merged in the Consolidated. While Mr. Simpson for some time back had not enjoyed the most rugged health, nevertheless he was able to attend to business, so the end came, with startling suddenness, the evening of Tuesday, April 8th. The funeral services were held the afternoon of last Thursday, in his late residence, 74 Park street, Montclair, N. J. Interment was made at the convenience of the family.

AN IMPORTANT EUROPEAN DECISION CONCERNING THE PATENT CONTENTION IN RESPECT OF VERTICAL RETORT OVEN CONSTRUCTION.—Under a somewhat similar caption to the one introducing this mention a recent number of the *Journal fuer Gasbeleuchtung*, calls the attention of its readers to the decision of the Imperial Court, in the suit of the Julius Pintsch Company, of Berlin, Germany, and the firm of Gustave Horn, of Brunswick, Germany, against the Dessauer Vertical Ofen Gesellschaft, of Berlin, to set aside the letters patent regarding improvements in the construction of vertical retort ovens. The Court completely reverses the judgment of the Imperial Patent Office; sets aside the temporary injunction against the defendants; orders costs to be paid by the complainants; and reinforces and affirms the Dessau Company's patents in the following positive language: "The inventors of the patented method, while employing some formerly well-known contrivances, have, by a happy choice and well considered combination and their applications, given to the technique of gas manufacture a new, practical and (through the results obtained) exceedingly valuable way of procedure, and have thereby achieved such technical progress as to entitle them, through entire worthiness, to protection by patent."

THE ENGLISH GAS EXHIBIT.—A National gas exhibition will be held in London, some time this summer, under the direction of a General Committee representing the Institute of Gas Engineers, the British Commercial Gas Association, the Society of British Gas Industries, and the Gas Undertakings of the United Kingdom. Plans have been prepared to adapt the present buildings at Shepherd's Bush to the purposes of the exhibit, and one of the main objects will be to attract the public. The preliminary programme calls for the formal reception of visiting foreign delegates; conferences on sanitary matters; engineering subjects, food and cooking, illumination, and various other topics. Sir Corbet Woodall is Chairman, and the Secretary is Mr. Walter T. Dunn, 39 Victoria street, S. W., London.

MAKING GAS IN TIME OF WAR.—In the annual report of the Ottoman Gas Company, operating in Smyrna, Turkey, mention is made of their late troubles. The price of coal had not only gone up by leaps-and-bounds, but there was reason to believe it could not be had at any price, the Greek Government having declared coal contraband-of-war. Finally, however, upon the solicitation of the British Foreign Office, a few cargoes were allowed to reach the works, and the Company was able to keep gas in the town. In spite of the disturbances the year's sendout shows an increase of 12 per cent.

PHILADELPHIA SECTION, ILLUMINATING ENGINEERING SOCIETY, APRIL MEETING.—The April meeting of this body will be held, the evening of Wednesday, the 23d inst., in the Auditorium of the Parkway Building, southeast corner Broad and Cherry streets. Conjointly the Philadelphia Gas Works' Section, National Commercial Gas Association, and the Philadelphia Electric Company Section, of the National Electric Light Association, will sit in session with the Illuminating Engineering Society. The paper to be considered will be prepared by Mr. Thomas W. Rolph, of the holophane division of the General Electric Company, on the subject of "Industrial Lighting." The paper should, and doubtless will, be fully discussed, and there will also be an exhibition of both gas and electric industrial units. Secretary Eichengreen further informs us that the dinner preceding the meeting will be served in Hanscom's restaurant, 1221 Chestnut street.

CURRENT MENTION—

THERE cannot be much doubt on the fact that that when Mr. Henry L. Doherty does things, the things are never done in portions. About the latest lively example in support of the above contention, may be instanced in connection with his off-hand drawing (and forwarding to the proper parties) of a check for $10,000 for the relief of those stricken by the recent devastating floods. Why shouldn't he prosper?

WE understand that the Columbia-Montour (Pa.) Electric Company has taken over the property and business of the Columbia (Pa.) Gas and Electric Company, including the 25-mile high tension line between Berwick and Danville.

MR. A. J. LLOYD, formerly Superintendent of the Consolidated Heat, Light and Power Company, of Visalia, Cal., left that city the 1st inst., to take complete charge of a new series plant for the capitalists who own the Central California Gas Company, of Tulare, County, Cal.

THE Village Trustees of Sag Harbor, Long Island, have assented to an extension, of the franchise of the Sag Harbor Lighting Compny, to terminate October 1, 1943.

THIS statement was submitted to the shareholders of the Brooklyn Borough (Coney Island, N. Y.) Gas Company, on the occasion of its recent annual meeting: The volume of gas sold during the year was 273,243,000 cubic feet, an increase of 29,760,100 cubic feet, and the net profit was $38,985, an increase of $10,000. On January 1, 1912, they had in use 7,877 meters, and on January 1, 1913, 8,942 meters, an increase of 1,065, or about 14 per cent. During the year 31,862 feet of new mains were laid at a cost of $44,595, making a total length of the company's mains now in use 98 miles. The 12th street plant has been increased during the twelvemonth by the addition of one new boiler and a complete relief holder system, at a cost of $54,121. During the year the company sold $351,000 of its general mortgage bonds, the proceeds being used in cancelling the outstanding notes of $268,750, and the balance, together with the surplus earnings, has been used for the construction, completion and extension of the plant and distribution system. The assets are indicated at $1,890,487, this figure showing an increase of $122,148 over that of a year ago, and the surplus at $180,922, an increase of $36,460 over last year's. Of the assets, real estate, plant and machinery constitute the largest single item $921,290, mains and services being the second largest, $368,863. Cash is listed at $9,298, accounts receivable at $26,176, and the bond discount account at $55,290. The capital stock is $500,000. The item showing the greatest reduction in the liabilities, the cutting down of notes payable from $268,750 to $5,000, was made possible by the sale of mortgage bonds referred to.

Publications.

[All Publications, Catalogues, etc., mentioned below, are kept in our office for the convenience of our patrons.]

"*The New Model Turbo-Blower for Mechanical Draft*," *Catalogue G.*—A 24 page catalogue describing the new model blower, well illustrated, put forth by the Turbo-Blower Company, New York.

"*Number 20 Reflex Lamp*," is the name of a leaflet that gives a description of a powerful, new mantle placed on the market by the Welsbach Company. The mantle is designed to compete with high powered tungsten units.

"*The Vulcan*" *Bulletin* for February contains many interesting items, besides calling attention to a few of the Wm. M. Crane Company's specialties.

"*Superheating*,"—the Heine Safety Boiler Company, of St. Louis, has recently issued a 16-page pamphlet on the matter of "Superheating," which has much more of interest than usually pertains to the advertising pamphlet in general. It is likely due in compilation to the cleverness of Mr. C. R. D. Meier, the Sales Manager, and we congratulate him on the compilation even if he could not see his way clear to showing constantly in our advertising columns the value of the Heine Safety boiler, as marketed by the Heine Company, of St. Louis. The initial section of the pamphlet is virtually the reprint of a paper from the Journal of "The Engineers Society of Pennsylvania," discussing the steam and fuel economy of superheating the various type of superheaters, the methods followed for obtaining control of the temperature of superheat and a brief description of the design and operation of the Heine Superheater. The latter is installed to the side of the main boiler drum in a superheater chamber forming a part of the main boiler setting. The superheater chamber connects with the furnace by a flue through which a small percentage of the furnace gases flow. A damper at the ontlet of the superheater controls the volume of gases and, therefore, the superheat temperature. A chart is reproduced in the pamphlet which shows the performance of the Heine superheater, illustrating how the steam temperature is maintained within about 5° of the mean. The final part of the pamphlet is devoted to abstracts from the "Transactions" of the American Society of Mechanical Engineers on the effect of superheated steam on cast iron. These notes give examples of the serious effects of fluctuating steam temperatures and excessive temperatures. Copies of this pamphlet will be sent to engineers on reqnest to the Heine Safety Boiler Company, St. Louis, Mo.

(Continued from page 239.)

to be very careful not to incur any loss. We cannot advance gas in preference to electricity, or *vice versa*. Recently, however, some advertising got out through our department that put gas a little in the lead, and it became necessary for our Manager to tell our aggressive advertising manager that he must not show preference for one over the other; but let each stand on its merits. It is hard sometimes to know just what to do. We have had a very good growth with our little Indiana properties in both gas and electricity, and find that the best policy is to be absolutely fair. In so doing we have conserved the best interests of our customers as well as our own.

Mr. Barnes—Do they sell or rent the lamps in Hammond?

Mr. Ray—Our custom in years past has been to rent, but we endeavored to give that up and sell the arcs outright. We find as a result increased gas consumption. On a rental basis we are taken advantage of, and our experience, therefore, is that it is more desirable to sell the arcs outright, thus having the merchant, or the storekeeper, with a definite interest in the investment.

A Member—I would like to ask Mr. Ray what he would do with a straight gas plant?

Mr. Ray—That is a question, but I am greatly in favor of making the consumer pay for what he gets, and not carry too much of an investment account on a rental basis. If you do that, in the end you have many appliances to scrap. We went through that experience with our arc, and gasoline competition threatened us severely. Business men said, "I believe the only way you can drive the gasoline people out is to replace all your upright arcs with inverted." I asked, "Do you know what that would cost us?" He replied, "No, we have not figured that up." I said, "I have. It would cost us close to $25,000, and if that is your remedy for gasoline competition we will have to let the gasoline fellows continue. My remedy for their competition is salesmanship pure and simple."

Mr. Dunbar—Do you sell your electric arc lamp?

Mr. Ray—No; we do not sell any electric arc lamps. We do not market any electric arc lamps. The tungstens have replaced the old multiple lamps.

Mr. Dunbar—Have you any electric arcs in use?

Mr. Ray—None. There is no longer a demand for the electric arc. We advance the gas arc, especialiy at the entrances of stores. In a few towns we have a veritable white-way from installations of these gas arcs, so much so that it resulted in no desire in those towns for the ornamental street lighting system so well installed in several cities of the country.

The President—When you had the electric arcs in use, did you sell or rent them?

Mr. Ray—Both at the time. When the tungsten lamps came in we had to scrap a great many of those old multiple electric arc lamps. We installed the inverted gas arc with good success, and I must say the economy in dollars and cents is with the gas arc. Of course in some installations economy is not the only thing considered, but we have been very fair and liberal.

Mr. Danforth—Does Mr. Ray furnish lamp renewals free of charge?

Mr. Ray—No; we do not.

Mr. Maxon—Mr. Ray was asked whether or not he would insist on this matter of selling the lamps if managing a straight gas company. I would remark that I put 600 arc lamps absolutely out of commission in a town in which we owned both the electric and gas supply. We sold natural gas at 24 cents a 1,000, which was cheap illumination. We ceased maintaining arc lamps and induced the customers to buy them from us. A plumber started to maintain them at $1 a month, and in short time he put gas lighting out of business.

Mr. Powers—The Company I am with is a combined one. We put out quite a number of arc lamps, but these are only pushed where gasoline gives us trouble. This discussion brings to my mind an installation in a large dry goods store in Decatur, in which 28 gas arc lamps were owned by the storekeeper. We tried a number of times to have them put these lamps on a maintenance basis, but were unsuccessful. Being in the place one evening (the electric lights from some cause were out of commission) they were trying to use the gas lamps that had been hanging there for months. Whenever we approached them on the maintainance proposition they would say the janitor had plenty of time to do the work. This particular evening I got a good share of abuse from the owner for the service we were putting up and all that sort of thing. Then I convinced him that the maintenance was the thing, and he signed a contract. We cleaned the lamps, put them in shape, and he began to use them on Saturdays and special occasions, and eventually they ordered 8 more. In the end they paid three times the gas bill they formerly had, and paid it without any complaint.

Mr. Graf—We have listened to a great deal of intelligent and interesting discussion, and I cannot see why, among all the lamps we have, we pick out the gas arc lamp as the one lamp we must rent and cannot sell. Is it because in former times the electric companies put out arc lamps free? If that is the excuse, it is a very poor one. I was glad to have Mr. Ray tell us the electric arc lamp is obselete; that they are being replaced entirely by tungsten's. However, that which I wish to know is, why do we put out the arc as the one thing we cannot sell but must rent.

Mr. Powers—I have had experience in both selling lamps and renting them, and it resolves itself to one question. You must maintain the lamp if you want to get the business. As to the installation, a gas arc costs considerable money to fit and hang up in a store. The electrician will drop a cord for a lamp, and put on a shade and bulb at much less expense. That is one reason why a storekeeper will pay for an electric when he will not pay for a gas lamp. Changing the different types of lamps, from time to time, from the upright to the inverted, causes a great deal of expense. If up-to-date you want to give your customer the best there is. That causes great expense, and the gas company does better to sell the lamps, if it can; but by all means maintain them.

Mr. Eves—One point that seems to have escaped us all is this: There is an appliance on the market that is being commercially shown in Indianapolis for the first time, the Reflex No. 20 Welsbach lamp, which gives, according to figures, a higher candle power than the gas arc gives. In other words, it is a better competitor for lighting business and will secure, I believe, the installation of gas lighting in stores and all sorts of commercial places. We had an opportunity to see this light at the exhibit yesterday, and it is still on view at No. 37 South Pennsylvania street.

(To be Continued.)

Address of the President (Mr. H. O. Channon) Illinois Gas Association, Delivered on the Occasion of its Annual Meeting, Chicago, March 19 and 20, 1913.

Members of the Illinois Gas Association; The year has brought several important happenings to our industry. We have seen practically all of the political parties of our State adopt platforms pledging themselves to an Illinois Public Service Commission. However, as most of our States now have these Commissions, and, from the operation of those longest established, we have come to realize that, to the properly operated company, they offer no real hardship, though perhaps considerable annoyance, it would seem best to welcome such a Commission and lend such help as we can to getting it started on broad lines, with educated, talented Commissioners, rather than on lines political. Such a Commission should make our securities more stable and help bring the general public to know that our business is a legitimate one run on honorable methods.

All our companies making carbureted water gas have been hit hard by the phenomenal prices of gas oil. With little prospect of relief in sight in this direction, they can only turn to the coal gas proposition, a proceeding that many of the smaller companies can ill afford, and which is bound to increase the scarcity of retort house labor, an item which has affected many of us adversely the past summer.

This change will also increase the supply of coke; but, with an anthracite shortage and consequent high prices, a good market at a fair price should not be difficult for this additional coke, part of which will undoubtedly be metallurgical coke.

Those of us who are getting around the half million per day mark are beginning to look with much interest towards the coke or gas oven propositions, where the promises of some of the makers on the operating labor necessary appeal very strongly.

That we shall know more of this comparatively new method of manufacture in the near future is certain, as two of our companies have plants in operation, and one each of two other styles is now being operated in an adjoining State. I speak of Joliet and Waukegan, in our State, and of Muncie and Indianapolis in Indiana. The four installations represent the four best known makes of ovens.

From present indications it would seem that ovens and high pressure distribution are to be the logical solution of the small plant problem, and that this will work out, much like our electric friends have been solving the same problem so generally the last year or so.

On commercial lines many of our companies have succeeded in in-

creasing their sales largely by special apparatus sales, and house to house canvasses for specialties on time payments. These methods seem to appeal to the public and establish to it a new interest in our business. Special sales of lamps, gas irons, water heaters, etc., have been carried on very successfully in territory where a few years ago they would have fallen flat. Improved industrial apparatus, and a progressive appliance company in our midst, have also helped most of our companies to go after the industrial gas business more successfully,

Our Association has succeeded in getting about 80 new members, through the faithful efforts of our Secretary; but I regret to report the loss of some of our good supporters through removal from the State. All of you have received the last year's "Proceedings," and must appreciate that we almost overdid ourselves in publishing so large a volume. We consequently lost all of our accumulated funds, but have the record of publishing the largest number of high grade papers ever attempted by a State Association.

Gentlemen, our Association accomplished this, and I want every one of our members to enjoy the glory coming to us for such an achievement. This year we have six papers, none of so documentary a nature, I am sure, but some of interest to all, and some in the discussion of which none can listen without carrying away points which are sure to help ever in the conducting of our business.

Members of the Illinois Gas Association, I thank you for the honor bestowed upon me the past year, and hope the Association has suffered none by your action. However, I want to say again, if our Association is to keep on ascending, it must be through your efforts and not wholly those of your officers and committeemen.

Promotion of Friendly Public Relations Through Educational Publicity.

[A paper read by MR. H. J. GONDEN, at the March Meeting of the Illinois Gas Association.]

Operators of public utilities throughout the country are trying to convert the people to new beliefs in regard to public service. In order to do this they must give the people a new understanding of public service. All conversion is a matter of education. All education is a matter of publicity. This is your problem of public relations as it appears to me, and stated in the plainest terms I have been able to find for it.

The question of public relations is the phase of public service that is uppermost in the mind of every progressive manager of to-day. In every convention or other gathering of public utility men in the last 5 years or more, this subject has received most prominent consideration. Between conventions you have given it searching investigation and scientific study through the committees of your organizations. In your daily work each one has had it constantly in mind.

All this has had its results. You have developed a broader sense of your duty to the public. You have come to recognize the public interest and public welfare as chief considerations in your work. In recent years you have done much to establish a spirit of liberality and justness towards the public. By your discussion you have convinced yourselves of the potent force of public sentiment, as an influence in your affairs, and of the great desirability of cultivating public good will. Guided by your study and your daily experience you have reconstructed your business policies, and even your business principles, until now it may be said—at least so far as the companies are concerned—that a new status of public service has been reached. The companies are to be commended and congratulated upon this advancement.

But the public has not been so progressive. It has not been so readily responsive, perhaps, as you may have hoped, and as you had a right to expect. You tried to lead the way to better conditions, but the public has not been prompt to see this and accept its part of the obligation. In some cases you have been disappointed, possibly even discouraged. Your friendly advances have been met with suspicion and distrust. Your efforts to establish rates and service conditions that you knew to be fair and reasonable have aroused unfriendly criticism and antagonism, when you looked for confidence and helpful co operation. Some of you who have had such experience undoubtedly have said to yourselves, "Well, after all; what's the use?"

You find it is not enough that you should treat the public generously and exert yourselves to the utmost to give the people the best service practicable at the least cost to them. It still remains for you to convince the people that you really are doing this, and to make them appreciate all that it entails upon you and all that it means to them. This is going to be a big work of enlightenment and education, and, unfortunately, most of the teaching that the public has received thus far has been in the opposite direction.

You already have made some progress towards a better state of feeling between the public and your companies. Merely in establishing new standards for yourselves you have taken a long step forward. This also has had some compensating effect. Quite frequently now we see newspaper editorials and magazine articles commenting favorably on the more liberal policies that have been adopted by the public utility companies. In rare instances we see indications of a disposition on the part of the people to be reasonable in dealing with the companies; but in spite of all this, a great deal of the old feeling of distrust and antagonism still remains.

I am afraid that most of the public utility men do no realize the immense amount of work that still lies before them on their road to truly harmonious relations with the public. The unfriendliness from which they have suffered—and from which I fear they must expect to suffer for some time to come—being of long standing has taken a tenacious hold on the public mind. It will not be a simple or easy thing to remove it. In one form or another it has existed almost as long as the companies themselves, and most of the time it has been growing.

Whatever the companies may have done in the past, or may be doing in the present, to deserve public displeasure, and whatever dissatisfaction and unfairness may be natural to the average human citizen, we know that the prejudice against the utility companies is developed and perpetuated chiefly by teaching and by education, if you will accept the term in this connection. Because the people have been told so often that you are robbers, and your franchises are merely licenses to plunder the public, they have come to accept this belief without proof and without argument. It has become a dogma rather than a matter of individual opinion supported by reasoning. Suspicion of you and distrust of your motives have been developed as a habit of the public mind. To a large proportion of people the mere mention of a public utility suggests such terms as, "special privilege," "watered stock," "exorbitant rates," "robbery of the people to pay big dividends," and many others even stronger. This is because the people have heard these phrases applied to your companies so long and so often that it really does not occur to them to question their appropriateness.

For many years candidates for public office have known that the surest means of being elected is a platform denouncing the public utility companies, declaring open hostility against them, and promising low rates and other kinds of radical reform. They have practiced this in a most unprincipled manner, and it seems never to grow too old to be effective. The popularity of the 70-cent gas platform in the last city campaign in Chicago is an illustration of this. Men who have attained public office have demonstrated repeatedly that the baiting of public utility companies is the most popular form of official activity, and very few of them are big enough to resist the temptation to engage in it more or less, particularly if they are looking for re-election.

Both in-and-out of political seasons you suffer more or less by matter published in the newspapers, whose injustice towards you frequently is without logical argument or apparent excuse, and in many instances is merely flippant or intended to be humorous. When a paper prints a joke or a slighting comment about the "gas man" it may be that no harm is intended; but that is small consolation to you if it places you in a false light. Cartoon artists and even comedians on the stage find it easy to get a laugh at your expense, and they love dearly to work over the old "gag" about the meter "working overtime."

The effect of all this on the public mind, unfortunately, is too well known to you for me to try to tell you about it in further detail. I have alluded to these things for the purpose of bringing out clearly the fact that influences that operate to your detriment in the moulding of public sentiment work by means of publicity, and that means entirely. The political candidate shouts his arraignment of you to a gathering of his constituents, and if he can make it "hot stuff" the newspapers will give it still further publicity by printing it with big headlines. Therefore, he exerts himself to make it as hot as he can, for the more people he can reach the better his purposes are served. On the other hand, of course, the more publicity he gets the more injury you suffer. The office holder declares his ideas and his purposes at some public meeting or in an interview, and he too shapes his speech or his interview with the chief idea of getting just as much of it as possible into print.

The voluntary meddler in public affairs, with a plan for public ownership, rate reduction or new service requirements and the "sore-head" who wants to make trouble for the sake of getting even with the company, for refusing him special consideration or because of some other grievance, rushes first to the newspapers. His greatest activity is exerted in getting publicity for his projects. Like the others they usually find the papers ready to join in whatever excitement they are trying to start.

If these various classes of agitators did not find the columns of the newspapers open to them—or we'll say if they did not know such an easy and simple way of making the newspapers useful to them—their enthusiasm for radical regulation of public utilities would cool immediately. Even their opportunities on the political rostrum, and in the banquet halls and meetings of clubs and improvement associations, would not get them the notoriety they seek, and they would lose interest.

But newspapers do give prominence to the attacks against you, and from time-to-time publish more or less matter of similar character on their own account. When they do this it is not necessarily from any conscientious conviction, but because they think it is the sort of thing that will challenge public interest and win popular approval. The newspapers of to-day do not attempt to guide public opinion; they allow it to guide them. If the public forms a prejudice the newspapers fall in line with it at once and cater to it. Thus they intensify rather than correct it. Their motto is, "Give the people what they want," and when they think they have determined what the people want they shape their own course accordingly. Sensationalism is the highest ideal of most of them. The injustice that you have suffered at their hands may be explained in great part by the generally accepted belief among newspaper men that there is more exciting interest in a "roast" than in either a "boost" or an article written in conservative tone.

It is plain that the newspaper has been a principal instrument, even when not a "prime mover," in the development and perpetuation of public prejudice against you. It should be equally clear that the newspaper must be your own chief means of correcting that prejudice. It is your best, if not your only, way of reaching the people for the purpose of informing them and converting them to your ideas of public service.

To sum up your situation in a few words, gentlemen, the thing that you need most in improving your public relations is publicity. You can't have too much of it—provided always, that it is of the right kind. None at all would be better than the wrong kind. Your present high efficiency of service, your modern business methods and your intelligent co-operation in the building up of your different cities, entitle you more than ever to the respect and confidence of the public. You know this; but the great thing is to have the people know it. Your best way is to tell them about it in the newspapers, for they would be a long time finding out by any other means.

For nearly 10 years I have made a close study of publicity in its relation to the interests of public utility companies. Previously I was engaged in daily newspaper work for some years. It is from this experience that I have formed my ideas of your situation and its requirements. It is upon what I learned in the course of this experience that I base such suggestions as I presume to offer you.

From my contact with public utility men, I find most of them already believe thoroughly in publicity. Some of them even are enthusiasts on the subject. The trouble is they believe in it just as the average business man does in physical exercise. All of us know that walking is healthful and that we would be greatly benefited physically if we did more of it. Some of us will spend 10 or 15 minutes almost any time telling some other fellow how much better he would feel if he would only walk 2 or 3 miles every day. Yet when we have to make a trip of anything more than 3 or 4 city blocks we take a car even though we may have plenty of time. That is your trouble. You know publicity is desirable, that it would help you; you don't get any farther than telling the other fellow what a great thing it is. After all the enthusiastic talk I have heard I am surprised that more of you have not put it into practice.

You have before you a work of enlightenment on a large scale. You must give the people a new conception of public service and a new appreciation of your companies. You must make them see—as you do—that the most efficient service can be obtained only by co-operation between the public and the companies. You must explain to the people the ruling elements of your business. You must help them to understand what is fair to you and what is fair to them. If your undertaking is to have the far-reaching and lasting effect for which we all hope, it will call for general and continued work on the part of all the companies. It cannot be accomplished by temporary activity from time-to-time on the part of a few companies scattered throughout the country. If you are going to convert the whole public you will have to keep at your work like the ministers of Christianity.

Because of the difference in your interests and your local situations, you will not be able to formulate any unified campaign to embrace all classes of utilities and cover the entire field. That, of course, would be out of the question, but you should work in harmony. Among yourselves you have established certain fixed principles of public service upon which, you believe, depend the future success and efficiency of your companies and future benefit to the public. Every company should embrace these principles and live up to them strictly. Every company should use its best effort to impress them upon the public, not only by the force of example but in every way possible. If you use them wisely the newspapers will be of the greatest help to you in doing this.

From time-to-time, of course, you all are asked for information to be used in the preparation of news stories about your companies. From my own experience I should say that in such a case it is wise to be just as frank as the circumstances will warrant. If I were the manager of a public utility I should try to make the newspaper men my friends by taking them into my confidence as far as I could without positive injury to my company, telling them my purposes and asking for their co-operation in informing the public correctly. In every statement I made for publication I should try to give the public as much real information as possible. Above all, I should never be too busy to see a newspaper reporter, for I should not want to miss so good a chance to talk to thousands of people.

But you cannot be sure at all times that the class of matter that will advance your cause the most will find ready access to the news part of a paper. It may not always possess striking news interest according to newspaper standards. Even though in some cases the main facts to be stated may meet this requirement you will not be permitted to prepare the copy in your own way, and you cannot tell how it will be handled. For these reasons it is essential that in your publicity work you should use the advertising columns where the space you pay for is your own, without obligation to anybody, and where you are free to tell your own story in your own way, addressing yourselves directly to the people.

I would advise that you make no attempt at any time to disguise your reading matter as news by the use of the so-called "paid reading notices." That would savor of "trying to put something over." I have heard it argued that a reading notice is worth two display advertisements, but my own experience has taught me that if the display "ad." has the right material in it, is properly written and attractively displayed, it will be read much more extensively than the "reader."

Advertising is an art. It demands special skill and training as well as intelligence. No part of the work of a successful department store is more carefully done, nor more closely scrutinized, than the advertising. There is need for special discrimination and skill in directing publicity for public utility companies. Ill advised matter of any kind in the newspapers would be worse than ineffectual. It would be positively injurious. Every inch of space you use should be made to contribute something to your benefit. Such result can be obtained only by scientific methods of publicity.

The kind of publicity that you need is expert work. It is not a thing that can be shifted onto any office employee who happens to have a little time or that even the manager can pick up in an odd moment. It must be carefully planned and skillfully prepared. In every line and every word it must conform to your policies. Above all, it must carry a message to the reader.

Most earnestly I would urge you to avoid even the appearance of exaggeration or misrepresentation. Let your assertions be strong as you can make truthfully, but clean cut and reasonable. Back up your arguments with sound logic. Employed judiciously, newspaper advertising will be of the greatest service to you, so don't detract from its value by using it carelessly and leading the people to distrust it. Your advertising matter, to be effective, must be convincing. Every line of it must ring true. You cannot afford to make statements that will not stand the test, and you cannot afford to make promises that you are not willing to stand by to the letter.

If you would have your advertisements read they must be interesting. If they are to accomplish the best results for you they must be instructive. To be able to combine these qualities is to know the

science of advertising. You should tell the people things about your business that they want to know. You should tell them the things that you want them to know, and do so in such a manner that they will believe you.

Because you exist by authority of the public, and because of your recognized responsibility to the public, every intelligent citizen has a natural and perfectly proper curiosity to know "inside facts" in regard to a company that supplies him with gas, electricity, water or street railway or telephone service. This curiosity has been one of your chief causes of trouble in the past. You can make it one of your greatest aids in the education of the public. You are the best authority on your own affairs, and you can make the people understand this if you will go about it in a straight-forward way. If you will give them good, sound facts, clean cut figures and logical reasoning, they will see the weakness of the estimates, opinions and general guesswork of the politicians and other agitators from whom they have received most of their information in former years. If you can convince the people of your disposition to be fair and reasonable, you need have no further concern about the politicians, office holders and other demagogues. They live by public sentiment entirely, and without that they can have no power to harm you, and will make no attempt to do so.

I think one of the greatest mistakes of public utility companies is in the idea that they need educational publicity only at times when they are attacked or when there is some active agitation against them. Some of the most effective work I have seen has been done when there was no acute situation to be dealt with, and no indication that trouble was brewing for the company. At such a time the minds of the people are more open to argument from you than when their long-standing prejudice against you is aroused to a high pitch by agitation. They can read what you have to say dispassionately, and are more likely to be impressed in your favor and less likely to suspect the accuracy of your statements than if you were seeking a new franchise or some other favor or defending yourself against a plan to reduce rates or enforce some other distasteful regulation.

Frequently I have heard a manager of a public utility say that he was contemplating some publicity work, but the time for that was "not quite ripe." It should be remembered that when a thing is ripe it is on the verge of decay, and it may slip into a state of rottenness before its ripeness is observed. I believe that, by timely publicity of the right kind, many of the public utilities could have avoided agitations from which they have suffered in the last few years. By the use of publicity after they were attacked most of them have been able to meet their difficulties successfully, but their expense would have been less and they would have been better off in every way if they had used publicity in time to prevent agitation instead of waiting until they were under fire.

Briquette Production, 1912.

A recent "Bulletin," of more than ordinary interest has just been issued by the U. S. Geological Survey, which deals with briquette production in the country for 1912. It is reported that the quantity of briquetted fuel manufactured in the year showed a small gain over the output for 1911, and according to E. W. Parker, of the United States Geological Survey, the industry may be considered as now passing out of the experimental stage and assuming a more substantial and permanent character. The quantity of briquetted fuel made in 1912, at 19 plants, was 220,064 short tons, valued at $952,261, as compared with 218,443 tons valued at $808,721, 1911. Of these plants 7 used anthracite culm, 9 used bituminous or semi bituminous slack, 1 used residue from gas manufactured from oil, 1 used mixed anthracite culm and bituminous slack, and 1 used peat. The quantity of raw material available for the manufacture of briquettes, as stated by Mr. Parker, is ample and may be obtained at slight cost. The most desirable material for producing a smokeless product is anthracite culm, a plentiful supply of which still remains in the anthracite region of Pennsylvania, and more is produced daily in the mining operations. It is not too much to believe or to hope that, in the near future, the smaller sizes of anthracite, such as buckwheat and smaller, that are now sold for making steam, in competition with bituminous coal and at prices below the actual cost of production, will become more valuable as a raw material for the briquette manufacturer. The output of these small sizes, produced by breaking up large coal to obtain the domestic grades—egg, stove and nut—exceeds 20,000,000 long tons annually, exclusive of 3,000,000 to 4,000,000 tons annually recovered from the culm banks by washeries. The present revenue from this product will not exceed $30,000,000. Washery and smal size coals are worth from 50 cents to $1.50 a ton, the price depending on the size. As briquetted fuel it should be worth as much as stove or egg coal, or $3 to $4 per ton. The cost of briquetting is $1 to $1.25 per ton. The uniform size of the briquettes makes them highly desirable as a domestic fuel; besides, if properly made, they are completely consumed and do not produce that bugbear to the housekeeper, clinkers. Slack from noncoking bituminous, subbituminous, and semianthracite coals is another cheap and abundant raw material. It is obtainable in all the coal mining regions of the middle-West, where at many places it is now wasted or almost given away. Some slack piles have been burned to prevent their cumbering the ground; others have ignited spontaneously and devoured themselves. The 220,064 tons of briquettes made in 1912 represent but a drop taken from the bucket of available material. The vast and almost untouched areas of lignite in North Dakota and Texas still contain enormous supplies of fuel that European experience has taught is well adapted to briquetting and that is much more usable in that form than in the raw state.

The large areas of peat beds in the United States are also available as a source of raw material. They are generally remote from the coal fields, and briquetted fuel from peat, when properly prepared, makes an excellent substitute for coal. While the briquette industry in the United States is still in its infancy the following figures show that the production has nearly twice doubled since 1907:

Production of Briquettes in the United States, 1907-1912.

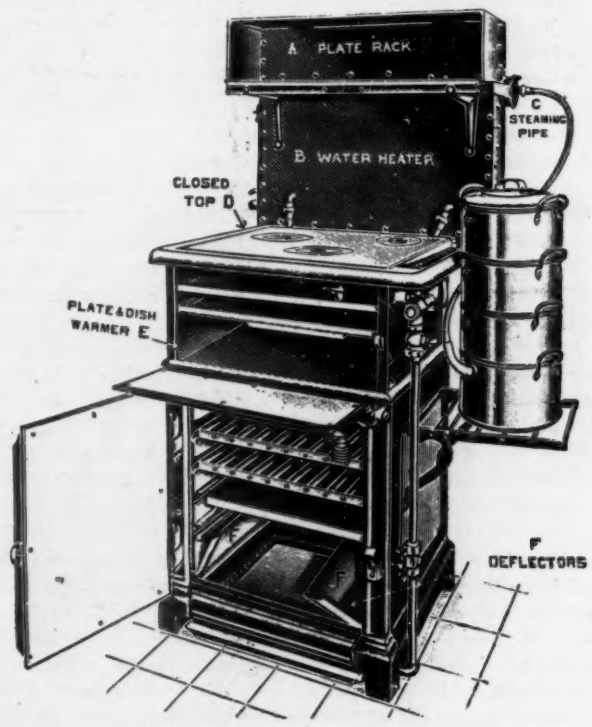
Year	Short Tons.	Value.
1907	66,524	$258,426
1909	139,661	452,697
1911	218,443	808,721
1912	220,064	952,261

In addition to the above we may further note that experience in European countries, and investigations made at the fuel-testing plant of the United States Geological Survey at St. Louis, have shown that lignite may be successfully briquetted without the use of any additional binding material, and that the most satisfactory binders for anthracite, semi-anthracite, bituminous and subbitumious coals are coal tar pitch, gas tar pitch and asphaltic pitch, or inexpensive cementing mixtures that are practically waterproof. Of the 19 briquetting plants in commercial operation in the United States during 1912, ten used as a binder coal tar pitch, or mixtures in which it is the chief ingredient; 1 plant used asphaltic pitch; 2 used water gas pitch; 4 used mixed binders (composition is not made public), and 2 (1 operating on peat, the other on carbon residue) used no binder. The number of plants using coal tar pitch as a binder exceeded all the others put together.

New Methods and Appliances.

A Water Heating Gas Range.—Solicitors are often asked by persons buying their first gas range, "How does it heat the water?" or "Will it give me hot water too?"

This combined cooker and water heater just put on the London market, is the attempt of an English woman to meet this want.



It is built with a closed top, and the top burners have water tubes around them running to the water tank *B*, which heats the plate rack *A*, and the steam from *B* is carried by a pipe *C* to the steam cooking vessels. The space *E* underneath the burners is utilized for a warming closet, and the oven burners, in the bottom, have side deflectors *F* for concentrating the heat in either side of the oven. It is evidently the lady's intention that no heat shall get away.

THE SPIRO TURBINE.—A new tar scrubber or separator has been brought out by the Buffalo (N. Y) Forge Company, that is promised a thorough trial, at an early date, under the supervision or direction of some Canadian gas engineers, who are also well-known in the United States. The operation of the device will be on the centrifugal order, and it would seem, from a critical examination of the blue prints and a thorough analysis of the descriptive text, that the apparatus will go a long way towards solving the perplexing problem of the economical and effective separation of water gas tar. A main feature is the driving mechanism, which is a so called "Spiro Turbine," in which the herringbone gear principle has been most ingeniously worked out to produce an exceedingly simple, economical and effective steam motor.—F. E.

CONVENIENT COMPLAINT BOOTH FOR USE OF CONSUMERS.—The complaint booth shown in the accompanying illustration was recently installed in the Commercial Department of the gas division of the business of the Consolidated Gas, Electric Light and Power Company, of Baltimore, Md. It is for the use or the accommodation of customers who call at the office to complain of the service, or whose business, pertaining to the commercial department, requires an unusual length of time for its completion, and where it is desirable to have the customers seated. The story of these booths, which is clearly told in a contemporary, by the clever New Business Manager of the Company, Mr. Herbert L. Dodson, notes that the booths are private in a sense, yet without the objectionable feature that goes with closed doors to rooms; further, easy access and egress are afforded, and the ventilation is much superior. Each booth contains a small table, on which the ledgers and office records may be placed for easy and ready reference, and under is a pull drawer, acting as a sort of safe or file for complaint letters. A suitably shaded gas lamp is suspended directly over the table, and a revolving chair is provided for the visitor's use. Pictures of various parts of the distribution department and works hang on the walls facing the customer, which may be referred to in better explaining the operations of the various departments of the Company. The booth is equipped with a push-button, so that the services of an office boy can be readily availed of. The former way of handling these matters was very unsatisfactory, for different customers waiting to make varied complaints were in line and could not fail to hear that which was being told by others. Not only so, but frequently those not connected with a particular case would chime in. Very few customers take into consideration the practical features of gas making and gas distribution, in so far as these relate to the supply to and use of gas in their offices, stores, factories or homes, to say nothing of the condition in which the appliances are kept. Since this booth has been in use the complaints are disposed of in a much better manner than heretofore, both in respect of the consumer and in regard to the Company.

Items of Interest
FROM VARIOUS LOCALITIES.

MESSRS. G. C. GOCHNAUER, of Harrisburg, Pa.; W. S. Bonberger and J. B. Ruser, of Camp Hill, Pa., have incorporated "The Gas Company," of Millersburg, Dauphin county, Pa., for the purpose of supplying gas on lighting acconnt to the residents of Millersburg and Elizabethville and those of the outlying townships of Upper Paxton and Washington. The main office of the corporation will be located in Millersburg.

THE electors of Clar inda, Ia., will shortly vote on the proposition to grant Mr. E. A. Murphy and associates a franchise to operate a gas plant in the named place. It is stipulated that $1.50 per 1,000 may be charged as a maximum price on a monthly use per meter up to 4,000 cubic feet, the rate on all in excess thereof per month to be billed at $1.35 per 1,000.

THE municipal gas plant heretofore operated on municipal account by the authorities of Rockwell, Ia. (it was of the combination greased-air sort), has been purchased by Mr. W. F. McCleland for $4,000. Our informant adds that the purchaser proposes "to operate the plant for a time at least." Which explanation rather goes to show that the "plant" must be sadly in need of revamping.

THE residents of St. Elmo, Tenn., which is an outlying suburb of Chattanooga, Tenn., wanted a gas supply, so they applied to Manager S. E. De Freese, of the Chattanooga Gas Company, if he would not lay on the necessary supply. Having looked over the situation, Mr. De Freese and his associates replied they would be more than pleased to do so, provided the St. Elmo folks would do their part towards making it possible that such a supply could be carried on without loss to the Company. Having proved that the main and service work necessary in the premises would cost at least $40,000, the Company asked that the authorities of St. Elmo bind the settlement to a contract on public lighting account that would at least equal a 6 per cent. return on the necessary expenditure. But, despite the fact that their appeal for gas was urgent and loud, the authorities would not consent to the Company's proposition.

"B. B. R.," writing from San Francisco, Cal., under date of the 2d inst., says: "During the year 1912 the gas sales made by the San Francisco Gas and Electric Company amounted to 6½ billions cubic feet, the gain in sendout over the volume accounted for in 1912 was 407,000,000. The number (net) of new consumers taken on was 33,764, or about 12 per cent. The expenditures on additions, improvements and betterments equaled $7,849,830, and it is explained that as fully $5,000,000 of this investment produced little or no increase in 1912, it should add materially to the Company's revenues this year, and to a still greater degree in 1914, when benefits derivable from the hydro-electric developments on Bear River will be experienced. The gross earnings in 1912 were $14,744,651.90; maintenance, operating expenses, etc., absorbed $8,431,561.17, leaving available for interest, etc., $6,313,090.79. Dividends of 6 per cent. on the preferred and 5 per cent. on the common, were paid, the total disbursement on joint account being $2,120,434.

AT the annual meeting of the shareholders in the Roanoke (Va.) Gas Light Company the retiring Board of Directors was re-elected. The Directors subsequently perfected the following organization: President, C. H. Geist; Vice-President, W. H. Lewis; Treasurer, H. A. Lang; Secretary, C. H. Weak.

THE Public Service Construction Company, 30 Broad street, New York (Mr. J. Alex. Mayers, President), has closed the following contracts in connection with the construction of the Porto Rico Gas Company: Four inclined, silica retort benches, exhausters, washer, scrubbers, purifiers, meters and governors, yard connections, and all other minor items, together with a steel retort house with cement tile roofing, to the Gas Machinery Company, Cleveland, O.; and a 500,000 cubic feet capacity storage holder to the Cruse-Kemper Company. Construction work will be commenced within a few weeks. The

Purchasing Agent on account of service pipes, fittings, meters, stoves, furniture, office equipment, etc., will be Mr. Walter Whetstone, of Whetstone & Co., 911 Filbert street, Philadelphia, Pa. This work will, of course, be done under the personal supervision of Mr. Mayers.

MR. J. E. FRANCIS, Superintendent of the Suffolk (Va). Gas and Electric Company, is carrying on an extensive advertising campaign, his allied forces being the local newspapers, postal cards and lantern slides, from which he avers he is securing many orders. The advertisements are chiefly original markings from the pen of W. H. Matlock, Jr., Richmond, Va.

WRITING of Mr. Matlock recalls the fact that the Henrico County (Va.) Gas Company, which supplies gas to Boston Heights and surroundings, of which Mr. F. L. Marshall is Superintendent, and whose Assistant is the clever Mr. Matlock, will shortly extend its main system into beautiful Ginter Park, which place is surely a noble work regarding the famous tobacconist, Mr. Ginter. The necessary franchise has been obtained and the work will be carried on forthwith. Mr. Marshall and his men will also commence work on the main extension to Highland Park, Va. Altogether it is proposed to put down 15 miles of pipe in the two places.

A CORRESPONDENT in Milwaukee, Wis., writing under date of the 3d inst., says that the appointment of Mr. J. A. Patten completes the working staff of the La Crosse (Wis.) Gas and Electric Company. Mr. Patten, who was Engineer and Manager of the Winona (Minn.) Gas Light and Coke Company, and who more recently has been Operating and Constructing Engineer to the Utah Gas and Coke Company, of Salt Lake City, Utah, has been transferred to a similar position with the La Crosse Gas and Electric Company. He is well-known in the gas and electric field, having started therein at Saginaw, Mich., in 1889. Since then he constructed and managed the property at Manitowoc, Wis. He left that location in 1906 to take over the management of the gas property at Holland, Mich., owned by the American Public Utilities Company. Mr. Patten informs us that it is the intention of the American Public Utilities Company to install a complete new gas plant at La Crosse, up to a daily capacity of 600,000 cubic feet, and it is also on the cards to rebuild its electric station as well.

THE Iowa City (Ia.) Gas and Electric Company has placed an order with The Gas Machinery Company, of Cleveland, O., for an ammonia concentrator for the recovery of free as well as fixed ammonia. This concentrator will be installed at an early date, and the United Light and Railways Company has made material improvements in and about the Iowa City plant since taking over this property.

THE "Advertising Man" of the Pittsburg Water Heater Company, of Pittsburgh, Pa. —note the "h-off" "h-on" way in which the Company and the City are "terminated," for such is the style in which each is spelled or written on the folder—has brought out a folder that is certainly as clever a piece of work in that line as we have seen for many a day. Write to them at their Pittsburgh—or + h, as you like, address. They will be sure to get your inquiry.

THE Public Utilities Commission, of New Jersey, after a thorough sifting of the merits of the application, has assented to the proposal that the interests of the Atlantic Highlands Gas Company, and those of the Standard Gas Company, of Red Bank, be merged. The title of the succeeding corporation is that of the Standard Gas Company, and under the agreement the rates charged for gas hereafter in Red Bank will be: Less than 1,000 cubic feet per month, $1.50; less than 10,000 cubic feet, $1.40; over 10,000 cubic feet, $1.25. Heretofore the rates were (on quantity schedule) these: $2; $1.65, and $1.50.

THE proprietors of the Fayette County (Pa.) Gas Company, of Connellsville, are arranging for an extension of their lines to and over the Yough river bridge into the thriving settlement beyond. They are also planning a large addition to their present business quarters in the Masonic Building, on Pittsburg street, Connellsville.

MR. FRANK R. SAVAGE, writing to us from Harrisburg, Pa., under date of the 4th inst., says: "Some days ago I witnessed a unique method of extinguishing a great volume of burning gas that was issuing from a natural gas well in the Lone Pine (Pa.) district at the rate of 5 millions cubic feet in 24 hours. The ignition had been caused by a flash of lightning. For 3 days the well men were fighting the huge column, without any success. The fourth day a boiler stack with base was mounted on rollers and moved over the 8-inch casing of the well. Then with a pull altogether, the stack, out of which the flame was roaring, was pulled away, the current was temporarily broken and the flames were at an end."

THE authorities of Bakersfield, Cal., have been ordered to show cause, in the Federal District Court, why the gas rate in Bakersfield should be drastically lowered to 50 cents per 1,000. Judge Wellborn granted the order, which automatically stays the cut in rate, until the case is argued. The ordinance was to have been put in force the 28th ult., and the Bakersfield Gas and Electric Company, in its appeal to the Court, urged that the rate was tantamount to confiscation.

WHILE the "yawpers" in charge of the public affairs of Minneapolis, Minn., have been loud in their attacks on the local gas suppliers, and have asserted in these maunderings that not only was the rate high while the quality was low, will find little help for their cause through an examination of the official reports respecting the quality of the gas supplied during the month of March, as per Inspector Meeds' figures for the named 31 days. These show that the average candle power was 19.34, against a minimum standard requirement of 18; and an average of 636.8 heat units against an ordinance prescription of 600. No traces of impurities were found. Still they yawp.

THE Corning (N. Y.) Light and Power Company has been incorporated with a capital of $500,000, to take over the business heretofore operated by the Corning Gas and Electric Company. The Directors are: Messrs. Daniel J. Creem, Clinton L. Rossiter and John McNamee, all of whom we believe are residents of Brooklyn, N. Y. The Company will construct a new and modern electric lighting plant, and the gas division of the works will also be largely added to.

WE are told that the plans for the new gas plant at Junction City, Kas., have been prepared, and that construction work will be gone on with at once. The plans call for a works equal to a maximum per diem output of 200,000 cubic feet; and it is further said that gas will be turned on by July 1st. Perhaps so.

"B. M. M.," writing from Easton, Pa., incloses the following: "The Atlantic Gas and Electric Company, incorporated some months ago in Connecticut, has assumed control of the Eastern Pennsylvania Power Company, and several changes have occurred in the management. Mr. R. A. Langworthy, who has been General Manager for the Eastern Pennsylvania Power Company, is to retire from that position, to enter the operating department in the New York offices of Messrs. Mickleham & Dinsmore. Mr. C. M. Pihl, who is in charge of the gas and electric division as Demonstrator, will continue in that place, and in addition will have charge of the commercial division of the Eastern Pennsylvania Power Company. Mr. E. J. Richards, now connected with the operating end of the Power Company, will take Mr. Langworthy's place as General Manager. Mr. Richards came to Easton recently from Connecticut. Mr. B. S. Lochlan, formerly in the financial division, retires from the service."

ALL the gas and electric interests in Louisville, Ky., including Donald McDonald's Kentucky Heating Company, will be consolidated, the successor thereto to be known as the Louisville Gas and Electric Company. The corporation will have a capitalization of $18,000,000, and its President will be Gen. George B. Harries. The Chairman of the Board of Directors will be Mr. H. M. Byllesby.

ON the evening of the 2d inst. the members of the Pittsfield (Mass.) Gas Company's Employees Association met in their newly decorated Club Rooms in the Company's office building on South street. The speaker of the evening was Mr. Fred. K. Wells, of the Pittsburgh Water Heater Company, who gave a very interesting lecture on instantaneous tank water heaters. Mr. Wells' story was interesting, educational and entertaining. After the lecture an excellent buffet supper was served. Since the Club's last meeting the 'Gastorium,' for such the members term their meeting place, underwent a complete renovation. The walls are now done in a soft brown coloring, the woodwork carries a creamy tint, and the furniture is of light oak. The general illumination is obtained from the 3-light Reflexolier type of lamps, 4 of which hang from the ceiling, and single-mantle lamps, with hand-painted shades, are placed at intervals along the walls. The fixtures are finished to match the wall paper and furnishings, and give to the room a harmonious, homelike effect. An all gas kitchen, such as may be found in many homes has been installed. The Association now has ideal Club Rooms in the best section of the city. The Club is surely a great success."

The Market for Gas Securities.

We have to record a decided drop in quotations for Consolidated over those reported last week. The opening to-day (Friday) was made at 133½ to 134, which is to all intent a decline of 2 points. There is, however, no good reason of any sort for the weakness, which no doubt comes from the tariff tinkering in Washington.

Brooklyn Union, on the other hand, fairly well maintains its ratings, as it surely should, for its trading increases in amazing ratio. Other gas shares are as a rule weaker; and a very tempting price (100 to 101) is on tap respecting Laclede common. The dividend (quarterly) of 1 per cent. on Massachusetts gas common is payable the 1st prox.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

APRIL 14.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$99,816,500	100	133⅛	134
Central Union Gas Co.—				
1st 5's, due 1927, J. & J.	8 5 0,000	1,000	103	106
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	105	106
Mutual Gas Co.	2,500,000	100	73	77
Detroit City Gas Co.	6,580,000	—	—	50
Detroit Gas Co.,5's	881,000	1,000	75	80
" Prior Lien 5's	5,619,000	1,000	97	100½
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	101	102½
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	59	62
1st Mtg. Gold Bds. 5 p. ct.	1,500,000	—	98½	100½
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	98	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	99½	101
Standard	5,000,000	100	60	70
Preferred	5,000,000	100	90	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	103	105
The Brooklyn Union	15,000,000	1,000	130	135
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	999,650	500	120	—
Out-of-Town Companies.				
Bay State	50,000,000	50	0.19	0.20
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	500,000	1,000	97	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	59	60
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,860,000	1,000	104	105¼
Cincinnati Gas and Electric Co.	29,500,000	100	87	90
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,882,750	100	90¼	91
Preferred	3,026,500	100	75¼	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	13,460,084		118¾	119
Mortgages, 5's	3,400,000		—	—
General Mortgage 4½	10,661,000		—	—
Con. Gas Co., Baltimore City, 4½	2,751,000		—	—
Consolidated Gas Co. of N. J.	1,000,000	100	15	—
Con. Mtg. 5's	976,000	1,000	94	96
Bonds	75,000	—	—	100
Essex and Hudson Gas Co.	6,500,000	—	183	186
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	130	133
" Bonds, 5's	10,500,000	—	104	106
Indianapolis	2,000,000	—	38	45
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	91	
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	98½	99
Laclede Gas Co., St. Louis.	10,000,000	100	100	101
Preferred	2,500,000	100	99	102
Bonds	10,000,000	1,000	102¾	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	120	130
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	106	
Massachusetts Gas Companies, of Boston	25,000,000	100	91	92
Preferred	25,000,000	100	93	94
Montreal L. H.& P., Canada	2,000,000	100	235½	236
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	97	98
Bonds, 6's	6,000,000	—	127	128
New Haven Gas Co.	5,000,000	25	182	190
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	112	114
1st Mortgage	20,100,000	1,000	102	102½
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105¼
Pacific Gas and Electric Co.	15,500,000	—	58½	60
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	96	98
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	106
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	3,447,000	1,000	94	96
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
Washington (D. C.) Gas Co.	1,800,000	200	424½	425
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	—	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, Richmond, Va., October 15-17, 1913. Officers: President, W. R. Addicks, New York City. Secretary, Geo. G. Ramsdell, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting Sept. 1913. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, New York City, Oct. 8, 1913. Officers: President, C. G. M. Thomas, Long Island City, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Gas Meeters.—Monthly Section Meetings; Grand Commissioner. I. W. Pefly, New York; Gen'l Sec'y, H. Thurston Owens, La Crosse, Wis.; New York Section, Chairman, Will W. Barnes; Secretary, John M. Brock, 204 Percy street, Flushing, N. Y. Philadelphia Section; Chairman, L. R. Dutton'; Secretary, H. F. Patterson, Jr., 831 Chestnut street. Cleveland Section, Chairman, F. R. Hutchinson; Secretary, Wm. Holtz, East Ohio Gas Co. New England Section, Chairman, F. M. Roberts, Haverhill; Sec., F. K. Wells, 69 Broad street, Boston. Winona Section, Winona, Minn., W. F. Clausen, Chairman.

Guild of Gas Managers of New England.—Annual meeting, March, 1913. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, March 18th and 19th, 1914. Chicago, Ills. Officers: President, W. F. Barrett, Chicago, Ills.; Secretary-Treasurer, Horace H. Clark, 115 No. Oak Park avenue, Oak Park, Ills.

Illuminating Engineering Society.—Annual meeting,———— September, 1913. Meetings of Sections, monthly. Pres., Preston S. Millar; General Secretary, J. D. Israel, 29 W. 39th street, New York City. Sections: New York, Secretary, C. L. Law, 124 West 42d street. New England, Secretary, H. C. Jones, 10 High street, Boston, Mass. Philadelphia, Secretary, L. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, J. B. Jackson, 28 North Market street. Pittsburgh, Secretary, J. C. Mundo, Oliver Building.

Indiana Gas Association.—Annual meeting, March —— —— 1914. Terre Haute. Officers: President, A. S. Cooke, Terre Haute; Vice-President, A. C. Blinn, Evansville; Secretary-Treasurer, Philmer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, May 22, 23, 24, 1913; Burlington, Ia. Officers: President, C. W. Fair, Atlantic, Ia.; Secretary, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, October —— 1913. ———— Officers: President, L. O. Ripley, Emporia, Kas.; Secretary and Treasurer, W. H. Fellows, Leavenworth, Kas.

Michigan Gas Association—Annual meeting, September, 17, 18, 19, 1913; ———— Officers: President, W. S. Blauvelt, Detroit, Mich; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1913; Mexico, Mo. Officers: President, P. A. Bertrand, Joplin, Mo.; Secretary and Treasurer, P. W. Markham, Brookfield, Mo.

National Commercial Gas Association.—Annual meeting and gas show, Dec. 1-6, 1913. Philadelphia, Pa. Officers: President, C. W. Hare, Philadelphia Pa.; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, Cleveland, O., May 20 22, 1913; Officers: President, M. B. Daly, Cleveland, O; Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, February, 18th and 19th, 1914 Boston. Officers: President, T. H. Hintze, Providence, R. I.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—Annual Meeting, April —, 1913, ———— N. J.—President, William H. Pettes, Newark, N. J.; Secretary-Treasurer, Arthur H. Osborn Belmar, N. J.

Ohio Gas Association.—Annual meeting, February ————, 1913, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary, L. B. Denning, Columbus, O.

Oklahoma Gas, Electric and Railway Association.—Annual meeting, Oklahoma City May, ——1913. President, F. W. Caldwell, Shawnee, Okla.; Secretary, H. V. Bozell, Norman, Okla.

Pacific Coast Gas Association.—Annual meeting, San Jose, Cal., September 16, 17, 18, 1913. Officers: President, Henry E. Adams, Stockton, Cal.; Secretary-Treasurer, Henry B. stwick, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, Allentown, Pa., April ————, 1914; Officers, President, J. A. Frick, Allentown, Pa.; Secretary-Treasurer. W. O. Lamson, Jr., West Chester, Pa.

Society of Gas Lighting.—Annual meeting Dec., 11, 1913; monthly meetings, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 29 West 39th street, New York city

Southern Gas Association.—Annual meeting, Charlotte, N. C., April 16-20, 1913, Officers: President, C. E. White, Montgomery, Ala.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. May 21, 22, 23 and 24, 1913, Galveston, Tex. Officers: President, F. M. Lege, Jr., Galveston, Tex.; Secretary H. S. Cooper, 405 Slaughter Bldg., Dallas, Tex,

Wisconsin Gas Association.—Annual meeting, May 14 and 15, 1913, Milwaukee, Wis. Officers: President, I. F. Wortendyke, Janesville, Wis.; Secretary-Treasurer, Henry Harmon. Milwaukee, Wis.